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## Original Contributions.

### RELATIVE TOXICITY OF COCAIN AND EUCAIN.

BY A. H. PECK, M.D., D.D.S., CHICAGO. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

Cocain hydrochlorate is a white crystalline alkaloid obtained from the leaves of the *Erythroxylon coca*, a small shrub of Peru and other Western South American countries. Its extensive use as a local anesthetic is so familiar to all that repetition is unnecessary. It is not my intention to especially refer to its anesthetic properties, but only to its toxic effects relatively with those of eucain, as observed in actual practice and as determined by original experimentation.

Eucain is a colorless crystalline powder of German production, and was placed on the market some years ago as an anesthetic to be used in a similar manner to cocain. It was soon observed that the first product, or that which is now called "alpha eucain," produced many undesirable, and some very disagreeable effects, so much so that its use was soon largely discontinued. In February, 1897, Dr. Sillex, of Berlin, brought forward a new substance, called Eucain "B," that it might be distinguished from the first, or Eucain "A." These are now termed—the first Alpha Eucain, and the second Beta Eucain. The use of alpha eucain has been almost entirely discontinued, and it is no longer furnished unless especially designated in the order. Beta eucain is said to be a chlorhydrate of benzoylvinyldiacetonalkamin.

Were the action of these drugs as anesthetics always unattended with disagreeable, and, as is sometimes the case, alarming symptoms, both of local and systemic character, they would be to the dental and medical professions one of the greatest boons of the present century. Many minor surgical operations, both in general and dental practice, could by the aid of these drugs be performed with equally good results and with greater facility than without their use. Unfortunately, cocain is in its action one of the most

inconstant and unreliable drugs in the whole Pharmacopeia. It will always produce anesthesia, if properly used, and also frequently produces poisonous symptoms, oftentimes alarming. If a certain quantity of arsenic or morphin, or almost any other known poison be used under certain circumstances, the resulting symptoms are nearly always the same; we know what to expect. It is unfortunate that the same cannot be said of the action of cocain. I have often seen the most alarming symptoms of systemic poisoning result from the use of a certain quantity of cocain, while in other individuals a like amount under seemingly the same conditions produces no bad symptoms. There is no other drug in the whole realm of medicine in connection with the action of which individuals vary so much in point of susceptibility. I have seen all the stereotyped symptoms of systemic cocain poisoning result from the use in a pulp-canal of a small quantity of a one per cent solution, while again I have seen injected into individuals twenty minims of a two per cent solution, and this repeated as high as four times without poisonous symptoms resulting, so varying is the susceptibility of individuals to the action of the drug.

I cannot pass on without calling attention to the fact that cocain produces in some local as well as systemic poisoning, notwithstanding the fact that many disagree with this statement. I have seen from the subcutaneous use of cocain, for the extraction of one root of a tooth, three good teeth lost, with extensive destruction of the alveolar plates of bone, together with extensive sloughing of the soft parts, and all this in the absence of any systemic symptoms. Some, no doubt, will say this is the result of infection by an unclean syringe. But how is it to be proven that this is the case? The work has been done under the most careful antiseptic precautions. I have seen so many cases of local poisoning in varying degrees result from the use of this drug that I am forced to the belief that it possesses local as well as systemic toxic properties.

As to eucaïn "B," there is much to be said in its favor as compared with cocain. During the past year I have frequently used it in practice for devitalizing pulps, for local applications, and by injection, and have as yet observed no evil effects of note. Eucaïn, however, is not capable of producing the same degree of anesthesia under like circumstances as is cocain. This has been proven beyond the possibility of a doubt by the experiments I have made.

As this paper is to deal only with the toxic properties of these drugs, I will not here discuss their anesthetic properties.

Last year, while experimenting extensively with the essential oils, using guinea pigs largely, I did some work with cocain and eucaïn, enough to demonstrate that there was an interesting field in contrasting the two. Since then I have experimented extensively with them on guinea pigs.

How completely is the statement that cocain varies much in its action demonstrated and proved to be correct by the following experiments, the first one serving to exhibit the poisonous propensities of the drug, and this, too, in the absence of any marked anesthetic effect: A pig, weight eight and one-half ounces, into which was injected twenty minims of a 2 per cent solution of cocain, which amount represents eight-twentieths of one grain, after the lapse of eight minutes showed some indications of anesthesia, but these were comparatively insignificant. For the next six minutes various symptoms of distress were exhibited, such as a general spasmodic, jerky action of all the muscles of the body, accompanied with evidences of pain. At the end of fourteen minutes its hind legs were partially paralyzed, and one minute later it fell on its side completely overcome. Its head was firmly drawn back, all the muscles of its body being rigid; this condition would at short intervals give way to a distressful spasmodic action, general in its scope, and thus these sets of symptoms continued to alternate for a period of five minutes. During these twenty minutes the animal was not anesthetized to any appreciable extent, responding vigorously to a prick of the needle at any portion of the body. The heart action at first was somewhat depressed, but soon recovered, and thereafter its contractions were strong and rapid, evidently being much stimulated. The respiratory organs, at first slightly stimulated, were very soon depressed, and remained so until recovery set in. After twenty minutes it began to recover, and at the end of twenty-five minutes could stand on its feet; however, could not walk without falling. At the expiration of forty minutes recovery was far advanced. This experiment shows the toxic action of the drug with the absence of anesthetic effect better than any other on my list. While the poisonous propensities of this drug are frequently manifested, they are usually accompanied with anesthesia.

The following experiment shows in just as interesting and de-

cided a manner the anesthetic action of the drug to the exclusion of nearly all manifestations of poisonous symptoms: Weight of pig, eight and one-half ounces; twenty minims of a 2 per cent solution of cocain were injected at 10:15½ p. m.; at 10:25 general anesthesia was quite marked, there being little response to the prick of a needle, and when placed on its back the animal could hardly regain its feet. The heart action was somewhat depressed. At 10:27 it fell to its side, the heart action being now about normal; respiration somewhat shallow and quick. At 10:37½ it regained its feet and occasionally evinced a desire to run away, its heart action now being strong and rapid and respiration normal. At 10:46½ ten minims more were injected, this making in all three-fifths of one grain. The side in which the second injection was made almost immediately became swollen, as if considerable edema were induced. This has been noted by others and forms the basis of the claim of some that local sloughing is due only to infection of the products of edema which have infiltrated the tissues, liquefaction or pus-formation taking place and sloughing finally resulting. This is no doubt true oftentimes. Up to 10:56 the pig remained on its feet, and for the last five minutes preceding would walk about, prick up its ears, look up and chirp, and in various other ways gave evidence of enjoying a period of that intense beatitude and inner joyousness, while a succession of visions and phantasmagoria, most brilliant in color and form, trooped rapidly before the eyes, as related by Wood in connection with the experience of Montegazza while under the influence of this drug. Occasionally it would make a sudden rush, as if impelled by a plenitude of physical power, such as also took possession of Montegazza at various times. At 10:56 symptoms of general anesthesia were quite marked, a condition of general relaxation rapidly developing. At 11 it became unconscious and sank on its side to the table. Immediately after the second injection the heart action was noticeably depressed, but quickly revived and became exaggerated over the normal. The respiratory apparatus was somewhat depressed most of the time. At 11:03 there occurred a slight general spasmodic action of all the muscles, the head being slightly drawn back; this was accompanied with a feeble cry, as if in slight pain. Action of the heart was strong and rapid; the breathing quick and shallow; true tetanus of various muscles was observed. This endured only an instant, all the muscles becoming



perfectly relaxed as before. Thus the animal continued in a state of perfect general anesthesia. At 11:06 action of the heart became feeble and respiration scarcely noticeable. At 11:12½ the animal was apparently dead; respiration and the heart action both ceased. Thus it lay for thirty seconds; at 11:13 a faint gasp was observed, followed quickly by a second and third. The heart began to beat feebly, and at 11:15 the heart was beating regularly, but not so rapidly as normal; the respiratory apparatus was working regularly, but not strongly. Thus the animal remained in a perfect state of general anesthesia for twenty-three minutes, or until 11:38, when signs of recovery were observed. It was then placed in its box, and in the morning was as bright and lively as its mates.

The behavior of other pigs under the influence of cocain has in some instances approached the behavior of this one, but no other has been so typical. This, in connection with the results of all my experiments in this particular, to my mind effectually settles the question of the inconstancy of the action of cocain.

Let us now study the action of beta eucaïn under similar circumstances. Twenty minims of a 2 per cent solution of beta eucaïn, or eight-twentieths of one grain, were injected into a pig of eight and one-half ounces weight. At the expiration of thirteen minutes there was slight evidence of anesthesia, or perhaps better said, the action was that of a mild hypnotic, the animal appearing somewhat drowsy, at the same time all reflexes responded to any interference by way of pricking. The action of the heart and respiratory apparatus was slightly depressed. Three minutes later recovery commenced, and at the expiration of twenty minutes the effects of the drug had largely passed away. Two minutes later another twenty minims, or four-fifths of one grain in all, were injected. Five minutes later slight evidence of nausea was observed; at nine minutes the hypnotic action was more marked and was accompanied with slight evidence of true anesthesia. Its hind parts were somewhat paralyzed, and the reflexes slightly blunted. The heart action and respiration were more depressed than at first. At eighteen minutes it began to recover, and at the expiration of twenty-five minutes, or forty-seven minutes from the time of first injection, was able to walk about. One minute later, or forty-eight minutes from the time of the first injection, a third injection of twenty minims, making one and one-fifth grains in all, was made. Five minutes later nausea

developed and the animal seemed much distressed thereby. The heart action and respiration, being at first stimulated, soon became much depressed; after ten minutes twitching of all muscles of the body, spasmodic in character, developed; this condition increased until at the expiration of eighteen minutes the animal fell to the table completely exhausted. Its head was firmly drawn back, all the muscles being at high tension; rapid winking of the eyes continued, with gasping for breath and twitching of ears. For the next twenty minutes this condition continued, with violent tetanoid spasms of all muscles following one another with rapid succession, each spasm being accompanied with mournful squealing, which seemed to indicate much distress and pain. At no time were the reflexes, either plantar or cremasteric, lost; neither was there much evidence of general anesthesia; indeed, the entire action seemed to be more that of a paralyzer than of an anesthetizer. The heart action and the respiratory apparatus were much depressed. At times the heart-beat was almost discernible, and the animal would gasp distressingly for breath. At the expiration of this twenty minutes signs of recovery developed, and at the expiration of twelve minutes more it could stand on its feet, but could not walk without toppling over. It was now very late, so the animal was placed in its box, and in the morning was found to be none the worse for its experience. This case is interesting in that it seems to prove conclusively that at least three times the quantity of beta eucaïn is required to produce virtually the same degree of toxicity as is produced by cocain. These results, or this action of the two drugs, as related in this experiment and the first one with cocain, I regard as bearing directly on their toxic properties.

Legrand and Joanin, like Silex and Schmidt, have proved that one and one-fifth grains of cocain are necessary to cause death of a guinea-pig of two and one-fifth pounds weight, and that four and five-eighths grains of beta eucaïn are necessary to cause death of a pig of the same weight. I have been unable to secure pigs as heavy as this, the heaviest I have had weighing twenty-six and a half ounces. Taking their figures as a basis, and reckoning a fatal dose for a pig of less weight in direct ratio therewith, it would require five-sixths of one grain of cocain to cause death of a pig weighing twenty-four ounces, and of beta eucaïn two and four-sevenths grains would be necessary. Let me say in this connection that this manner of deter-

mining a fatal dose for a pig of a given weight is not a safe one to follow in dealing with pigs of less than twenty-four to twenty-five ounces weight. My experiments seem to prove conclusively that the ratio of a fatal dose of these drugs decreases rapidly in proportion to the decrease in weight and age of the animal.

In my work five-sevenths of one grain of cocain proved the limit as a fatal dose for a pig of twenty-four and one-half ounces weight. The symptoms manifested in this case were not in any essential particular different from those occasioned by a non-fatal toxic dose, which symptoms have already been described, except that at times they were all exaggerated, and especially was this noticeable in connection with the heart. After the brief depression of this organ which occurred at first, its action became greatly exaggerated, at times violently thumping, especially as the end drew near and the respiratory apparatus became more depressed. Death occurred at the expiration of nineteen minutes by paralysis of the muscles of respiration, the heart continuing to beat feebly and irregularly for thirty seconds after breathing ceased.

The violent action of the heart above referred to seemed to be more an effort on the part of the animal economy to supply the needed oxygen to the system through the medium of the circulation, during the period of respiratory depression, than the result of direct stimulation by the drug.

The difference of susceptibility of these animals to this drug is striking. In one instance one-half of one grain proved fatal to a female pig of twenty-five and one-half ounces weight, while in another instance a male pig of sixteen and one-half ounces weight survived the effects of a like quantity. However, on the whole I think the sex makes very little if any difference in the action of these drugs. The above fatal dose for a pig of the given weight has been determined after many experiments with pigs of different weights, and with different quantities of the drug. The same also is true in connection with beta and alpha eucain.

Of beta eucain two and two-sevenths grains are necessary to cause death of a pig of twenty-four and one-half ounces weight. In this experiment death occurred in thirty-two and three-quarter minutes from the time of injection. The symptoms were not unlike those already described in connection with the use of this agent, except that, as in the case of fatality by cocain, they were greatly

exaggerated. At no time were evidences of anesthesia marked, nor were the reflexes entirely lost. The action of the heart and the respiratory apparatus was depressed after a brief period of stimulation at first. When violent spasms occurred the heart action would be temporarily stimulated. Death occurred from paralysis of the muscles of respiration and of the heart, breathing and the heart action ceasing at the same time.

Alpha eucaïn has proved to be virtually on a par with cocaine as to toxic properties. Five-sixths of one grain is the limit as to fatal action with pigs of twenty-five and one-quarter ounces weight. I injected this amount of alpha eucaïn into a pig of this weight, and at the expiration of seven minutes trembling of all its muscles occurred; at nine minutes its head drooped, with nose to the table; at eleven and one-half minutes the animal suddenly fell to its side and was seized with violent spasms; its heart action and respiration were temporarily increased, being very soon thereafter much depressed; nausea and some vomiting occurred; the drug also acted as a diuretic, renal discharge occurring quite freely; severe spasmodic contraction of all muscles followed one another in rapid succession, and were invariably accompanied with evidences of pain more or less severe. Death occurred at the expiration of eighteen minutes by paralysis of the muscles of respiration and of the heart, breathing and the heart action ceasing at the same time.

It is also stated that cocaine cannot be sterilized by boiling, and that if subjected to a temperature of 176 degrees F. it is transformed into ecgonin, a substance devoid of all analgesic power; also that boiling does not in any degree affect the efficiency of eucaïn. I have demonstrated this statement regarding eucaïn to be true, but if it be true regarding cocaine my experiments in this connection are in error. According to them, it is shown conclusively that boiling does not destroy the potency of this drug, but does modify it somewhat. I prepared a 2 per cent solution of cocaine and also of eucaïn. These I subjected to a bath of boiling water for five minutes. These solutions were allowed to cool gradually, after which twenty minims of the cocaine solution were injected into a pig of eight and one-half ounces weight, with the following result. At the expiration of seven minutes all its muscles were in a tremor, and at ten minutes control of its hind parts was lost; at eleven minutes it fell to the table completely overcome. The symptoms which

followed were the same as in other cases, except they were less violent. At the expiration of thirty minutes the animal had apparently recovered.

Into another pig of eight and one-half ounces weight were injected twenty minims of the boiled 2 per cent solution of beta eucaïn. No symptoms of note followed this injection, with the exception that the hind parts were for a time somewhat paralyzed. At the expiration of twenty-two minutes a second injection of twenty minims was made. The symptoms following were virtually the same as those which followed the second injection of the other case as related above. At the expiration of forty-five minutes after the second injection recovery was well advanced. A third injection of twenty minims was now made; the symptoms which followed were identical with and somewhat intensified over those of the other case related above. At the expiration of forty-six minutes after the third injection the animal had nearly recovered.

To recapitulate, my experiments lead me to conclude as follows:

1. The action of cocain is inconstant; one never knows whether the symptoms occasioned by like quantities of the drug, in animals or individuals, under like circumstances, will be similar or dissimilar.
2. The action of eucaïn is constant. The symptoms occasioned by the use of like quantities in animals under like circumstances, and, so far as my experience has gone, in different individuals also, are the same.
3. The first action of cocain on the heart is that of a depressant, and on the respiration is that of a mild stimulant; the aftereffects being on the heart that of a decided stimulant, and on the respiration that of a decided depressant.
4. The first action of eucaïn on both the heart and respiration is that of a stimulant, the aftereffects being that of a decided depressant.
5. Cocain causes death in animals by paralyzing the muscles of the respiratory apparatus, the heart's action continuing in a feeble way for a brief period after breathing ceases.
6. Eucaïn causes death in animals by paralyzing the muscles of the heart and of the respiratory apparatus, they ceasing to operate simultaneously.
7. Eucaïn in toxic doses nearly always causes nausea and occasionally vomiting.
8. Cocain is much less nauseating and scarcely ever causes vomiting.
9. Eucaïn is decidedly a diuretic, causing renal discharge in a majority of instances in which a toxic dose is used.
10. Cocain is not a diuretic to any appreciable extent, renal discharge having oc-

curred in only one instance in connection with all my experiments. 11. The pupils of the eyes in nearly all cases of cocain poisoning do not respond to light and are more or less bulging from their sockets. 12. The pupils of the eyes in most cases of eucain poisoning do respond feebly to light and rarely ever bulge from their sockets. 13. The action of toxic doses of eucain is more like that of a paralyzing, tetanoiding, convulsion-producing agent than it is like an anesthetizing one, the plantar and cremasteric reflexes nearly always responding. 14. Toxic doses of cocain cause general anesthesia in connection with the other symptoms in the majority of cases. 15. Tetanus of all striped muscles of the limbs, and Cheyne-Stokes breathing nearly always occur with cocain, but seldom does either occur when eucain is used. 16. Cocain is at least three times more toxic than beta eucain, and alpha eucain is as toxic as cocain. 17. Boiling does not destroy the efficacy of cocain, but it modifies it, and boiling in no degree lessens the efficiency of eucain.

*Discussion.* *Dr. J. H. Woolley*, Chicago: From experiments made several years ago I became convinced of the unreliability of cocain, and subsequent observation has confirmed my aversion to it, so that I do not feel justified in using it in my practice.

*Dr. C. E. Bentley*, Chicago: Eight years back a party of dentists experimented with cocain on dogs, to discover some antidote for cocain poisoning, and we found that aromatic spirits of ammonia, sulphate of morphia and coffee would resuscitate a dog which was in a comatose condition. I used cocain sparingly in my office practice until a patient nearly died from an injection of four minims of a four per cent solution. After that I gave it up almost entirely, and now use it only to anesthetise pulps before extirpation. Even from what the essayist has given us, I do not think we are warranted in the indiscriminate use of cocain or even eucain.

*Dr. A. H. Peck*: I have brought with me some guinea-pigs to demonstrate the actual truths as stated in the paper. This pig weighs  $24\frac{3}{4}$  ounces. Ordinarily  $\frac{1}{2}$  of one grain of cocain would prove fatal. I have injected 20 minims of water containing this proportion. According to the paper symptoms should be developed shortly and the dose will probably prove fatal. However, the action of cocain is different in different animals, and the figures given in the paper were the average of many experiments. You will now notice there is a slight tremor of the muscles of the pig, and if any



of you wish to take note of the respiration or of heart action it can easily be done. The present movements of the pig are not natural, but are caused by the drug. This extension of the hind leg is not normal and the pig is losing control; you see the general swaying and drawing back of the head. The pig has now fallen on its side and you see the tremor of the muscles of the limbs, occasionally true tetanus forms, continuous for an instant and then passes away. The time is now five minutes. The cocain is producing some nausea and there is a slight tendency to vomit. You now note the violent spasmodic action of the muscles. The breathing ceased just a minute ago, but the heart is still beating feebly. The time is now eight minutes and there is no heart action. Figuring from the fatal dose that I have quoted with the relative weights this ordinarily proves fatal with hydrochlorate.

The second pig here weighs 21 ounces. According to the ratio of the fatal dose of alpha eucain it would in this case be  $\frac{5}{8}$  of one grain. I injected this amount in 20 minims of water and it proved fatal. You probably observed that the symptoms manifested by this pig were very different from those shown by the pig into which cocain was injected. I will not describe them because they are amplified in the paper.

This pig weighs 14 ounces. According to the ratio of the fatal dose of beta eucain 2 grains would be sufficient, and I have injected this amount. You can watch the result. The injection of alpha eucain in the other pig caused death in  $10\frac{1}{2}$  minutes. There was paralysis of the muscles of both the heart and respiration. In the pig that died from cocain the heart continued to beat feebly for a short time after breathing ceased. This pig into which I injected 2 grains of eucain B is reviving steadily and will live. This should have proved a fatal dose, but this case substantiates the statement made in the paper, that eucain B is much less toxic than the others.

### MUMMIFICATION OF PULPS.

By R. C. GEBHARDT, D.D.S., BLACK RIVER FALLS, WIS. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

My attempts in the line of mummification of pulps have in the majority of cases been failures. I do not know whether it was the fault of the method pursued or whether it was a natural sequence. In the *Cosmos* of 1895 Dr. Soderberg gives his method of proce-

dure, and it was this that I pursued. In substance it is as follows: The pulp is devitalized, using equal parts of arsenic, cocain, alum and glycerol, q. s. to make paste. When devitalized the main pulp chamber is opened up and its dead contents are drilled out, leaving that part of pulp in root-canals untouched. Then fill pulp-chamber with the paste, pricking the paste into remains of pulp in the canals, although this last is not necessary. Then seal with cement and over this insert the permanent filling. The mummifying paste is composed of the following:

Dried alum . . . . . I ounce.  
 Thymol . . . . . I "  
 Glycerol . . . . . I "

Zinc oxid q. s. to make stiff paste.

In December of 1895 I commenced to experiment with this method, thinking what a boon to suffering humanity it would be, and also what a load would be lifted from the shoulders of the dental profession in the time saved and the relief from the nervous strain incident to the removal of obscure pulps. I doubt if I ever treated and filled the roots of a tooth by the old method but what I dismissed the patient for the time being with fear that I should see him return with a swollen face or perhaps worse. Of the thirty-five or more cases treated with the mummification process during three years a few returned to me inside of six months.

One peculiarity noticed in those that returned was the seeming disintegration of the cement, a bulging out as it were, and it seemed as if there was expansion to such an extent as to throw out the filling or fracture the walls of the cavity. In opening up several of these after being treated by the mummification process I found the pulps white, very tough, and they appeared desiccated and shriveled, and bathed in moisture. In several others extracted on account of soreness I found pulp in two of the canals perfectly dry, very tough and of whitish color; in the third canal, which no doubt caused the trouble, found remains of pulp surrounded with moisture but tough and white. One case which I frequently see has often slight soreness.

When examining these cases I concluded that to mummify a pulp thoroughly, so as to give no trouble afterwards, we must have some remedy that will not shrink the pulp or shrivel it to such an extent that there will be a space between it and the walls of the canal.

Otherwise secretions of some kind will find their way into the canals and sooner or later give trouble.

Another reason why I feared to continue the mummification was that after applying the paste the pulp remnants were shriveled or drawn from the apex of the root, thereby leaving an opening at apex through which moisture found an entrance. If the apex could be tightly sealed or encysted at the very beginning, before the drawing away of pulp, we might avoid this.

Thymol, which is relied upon as the principal antiseptic, is slow in action, and whether a pulp would remain sterile indefinitely under its antiseptic action is doubtful.

Dr. Soderberg mentions alum as one of the properties of an ideal mummification agent, an ingredient that will quickly cause mummification by drying or shriveling of the pulp tissues. In that alone we can look for future trouble. The pulp being shriveled will naturally draw away from the walls of the root-canals and secretions will eventually fill this space, and it is doubtful if thymol will indefinitely keep this moisture in an antiseptic condition. Furthermore, the majority of cements are not impervious to moisture, and in several of the cases opened up the cement looked as though it were disintegrated, perhaps by action of the mummification paste. Although I have about twenty cases in which the mummification has been a success, if after three years one can call the treatment a success, I feel that with 50 per cent of the cases a failure it does not warrant a continuance of this method of treating teeth.

Discussion. *Dr. J. H. Woolley*, Chicago: I have never mummified pulps because I think the treatment unscientific. In root-filling the canal should be thoroughly aseptic, absolutely dry, and the filling should fill the canal throughout the entire length, and should not disintegrate. Mummification meets none of these requirements. I had one case where the pulp had been mummified and it was necessary to treat the tooth for nine months before it was serviceable. In speaking of pulps and fillings I wish to emphasize the necessity for proper occlusion of filled teeth. Many scientific operations fail through poor articulation, and I have found cases where the pulps died from malocclusion.

*Dr. W. H. Cudworth*, Milwaukee: I took up this practice about the same time Dr. Gebhardt did, soon after reading the article in the *Cosmos*. From about 150 mummified pulps I had more trouble

than with all the pulps otherwise treated in eighteen years' practice. It is impossible to successfully treat such teeth when ulceration occurs.

*Dr. F. L. Barney, Viroqua:* My experience has been that if much of the pulp is left in position the tooth must be treated afterwards, but when the most of it is removed the balance can be successfully mummified.

### OPERATIVE TECHNICS.

BY RAYMOND J. WENKER, D.D.S., WATERTOWN, WIS. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

Previous to the introduction of the course of operative technics the student on entering college immediately began to operate in the dental infirmary, without any preparatory knowledge of dentistry except what he might have acquired as an apprentice. It was observed, however, that even those students who had acquired some knowledge of operating knew little or nothing of dental anatomy; nor was their familiarity with the forms of instruments, the correct manner of handling them, or the nature of the work itself, what could be desired.

The first effort to systematize a course in operative technics was made by Dr. G. V. Black, who presented the outline of his plan in a paper read before the Chicago Dental Society on June 21, 1888. After a short period of probation this course rapidly found favor with educators and was introduced into the curriculum of studies by many prominent dental schools.

Operative technics is a preparatory scheme of instruction in those preliminary branches of dentistry which help to qualify the student to operate in the mouth. Here, also, those particular muscles which are used in instrumentation are developed and trained to a degree of perfection which will insure their easy adjustment, coordinate movement and accurate control of the instrument in operating; the eye, too, is trained to a fine appreciation of the different parts of the teeth, of the interproximal spaces, of the instruments, cavities and fillings.

The course taught in the Dental Department of the Milwaukee Medical College embraces a period of twenty-six consecutive weeks of ten hours each—three hours being devoted to lectures and quizzes, the remaining seven to demonstration and practice. The

studies comprising the course are: *First*. A study of dental nomenclature. This consists of the definition, pronunciation and practical application of all the technical terms used in dental anatomy.

*Second*. A study of dental anatomy, which is divided into a theoretical and a practical part. The theoretical is taught by recitations and quizzes, using Black's Anatomy as a text-book, together with copious and original notes from various sources. These notes are used as a supplement to the text-book, and consist of diagrams showing the typical outline and groove arrangement, the usual number of grooves, lobes, pulp-horns and root-canals of each of the permanent and deciduous teeth; containing also a brief description of the main points of difference between the several teeth of each denomination. The practical part consists of filing longitudinal and cross-sections of the teeth, drawing different aspects of their outward and inward forms, taken singly and collectively, and of carving the natural forms in ivory.

For convenience in filing sections each tooth is sealed to a wooden block, and the number and aspect of the tooth are annotated on the upper corners. After all the filings are made the student cuts a line in the dentin next to the enamel with a wheel-bur. This line shows the thickness of the enamel at different points, the form of coronal portion of dentin, and location of gingival line. Each student then prints his sections in a note-book, and also prints as many other sections from the large collection at the school as he may have time for. In drawing the student reproduces the illustrations in the text-book, and in so doing his attention is more closely directed to outline form and to the location of the surface markings.

Before taking up carving a few preliminary instructions are given in instrumentation. This is done to give the student a right method of handling the new instruments which he is now about to use for the first time—the regular instruction in the use of instruments comes later. The carving is done with such tools as files, chisels and excavators. The student selects a well-formed natural tooth, seals it to an ivory block with the mesial surface down, and then roughly sketches the outline on the ivory. The tooth is then removed and the ivory cut to conform to the outline in such a way as to make the two cut surfaces parallel the entire width of the block; the tooth is next sealed to one of these cut surfaces with the labial or buccal surface down, and the outline sketched on the ivory,

after which the tooth is removed and the ivory cut as before. This gives the general form of the tooth with sharp corners and affords an excellent opportunity to make a practical study of the various angles of the teeth. In the remainder of the work, which demands great care and attention, the student must rely solely upon eye measurement to reproduce perfectly the physical form of the natural tooth in all details. In some schools it is customary to reproduce the natural teeth in clay or other material, and to make them several diameters larger than the original; but a little reflection will show that the student can get a more accurate idea of the teeth by reproducing them in ivory in their natural size. By working in ivory he gets a better idea of the character of dentin than by working in clay or any other substance, because of the close resemblance between dentin and ivory; and by making the reproduced teeth the exact size of the natural ones, his eye is trained to a finer appreciation of the form and size of the relative parts of the different teeth.

*Third.* A study of steel and of instrument-making. The student is first instructed in the composition and properties of steel, and in the manner of forging, filing, polishing and tempering instruments. He is then furnished with blank instrument forms made for this purpose, and proceeds at once with the work of instrument-making. The object in requiring students to make instruments is, first, to give them a perfect conception of the forms of the instruments; second, to familiarize them with the working qualities of steel that they may be better able to care for their tools; and third, that they may acquire sufficient mechanical skill to make such new instruments as special cases in their afterpractice may render necessary or useful.

*Fourth.* A study of instrument nomenclature and instrumentation. The student is taught the names of the different parts of the instruments and is instructed in Black's classification of instrument names, his system of measurement and formation of formula names. He is also taught how to grasp the instrument for the various positions, and the proper rests for each position; also the direction of the force to be applied with each instrument which he uses.

*Fifth.* A study of the physical character of enamel and dentin. This embraces the microscopical construction of enamel, dentin and cementum, their relation to each other, especially the mechanical relation of the enamel rods to the dentin, with special reference to



enamel cleavage; the physical strength of dentin; of supported and unsupported enamel; and the stress exerted upon the teeth in ordinary use and by special effort.

By the time this part of the course is reached the student will have trained his muscles and his eye to a fair degree of skill in filing sections, drawing, carving and making instruments. With a dozen or more carious teeth of different denominations, mounted in plaster, he now proceeds with exercises in enamel cleavage and excavating, being particular to hold the instruments properly, and to apply and control the force as instructed in the division just preceding.

*Sixth.* A study of dental pathology and therapeutics. The more important pathologic and therapeutic principles, with particular reference to the pulp and pericemental membrane, are briefly pointed out in such a manner as to impress upon the class the importance of thoroughness in the work to follow.

*Seventh.* A study of cleaning and filling root-canals. In this connection the student is taught the application of the rubber-dam. Those teeth which were invested in plaster are now used for this purpose. The canals of these teeth are cleaned, and if necessary enlarged with sulfuric acid, then desiccated and filled with different materials. Each tooth is now removed, broken with a hammer, and carefully examined to ascertain how perfectly the canals have been filled.

*Eighth.* A study of cavity nomenclature and cavity preparation. The plan is as follows: Every wall and angle in a cavity is given a name which corresponds as nearly as possible to the system of naming the surfaces and angles of the teeth; for instance, the walls of a buccal cavity in a lower right molar would be named thus—the wall nearest the gingival line, the gingival wall; the one nearest the occlusal surface, the occlusal wall; the one nearest the mesial, the mesial wall; the opposite one, the distal wall; and the wall nearest the pulp, the axial or pulpo-axial wall. The line and point angles are named by combining the names of the walls which join to form them, as the axio-gingival line angle, the axio-mesio-occlusal point angle, etc.

The cavities are divided into two general classes—smooth surface, and rough surface or pit and fissure cavities. A pit and fissure cavity is one in which caries begins in a fault and directly penetrates the enamel and dentin, whereas in a smooth surface cavity caries

spreads upon the surface of the enamel before penetrating it, and ultimately affects all that area which is habitually unclean. For the definite location of a cavity the name of a surface and the division of such surface are used, as labio-gingival cavity in an incisor or cuspid, mesio-occlusal cavity in a molar. In teaching cavity preparation an order of procedure is followed which is applicable to any cavity wherever located.

The student is taught the shape of ideal forms in the following order: outline, resistance, retention, convenience form, and enamel bevel. This is followed by detailed instructions in the manner of establishing each of these forms in cavities on the several surfaces of the different teeth. Each student selects a number of natural teeth as free from caries as possible, and with his carved teeth forms a complete set, the roots of which he invests with soft rubber tubing. The teeth are then arranged in arch form by sealing the crowns in impressions taken from a mouth containing a full set of natural teeth. If any part of the impression material approaches the roots it is cut away so as to allow a greater thickness of plaster to surround them. These impressions containing the teeth are now filled with plaster, and when this has become hard the models are removed, trimmed and mounted in an articulator.

The instructor now removes some of the teeth from the cast and outlines typical cavities on them with a pencil, whereupon the pupil proceeds with exercises in the preparation of cavities, beginning with the ivory teeth, using hand instruments and closely following all previous instructions bearing on the subject. After some cavities are prepared out of the dummy mouth, the student himself outlines cavities on natural teeth, replaces them in the alveoli, and continues practicing until the necessary proficiency is acquired.

*Ninth.* A study of filling materials and their manipulation, consisting of a study of the properties, composition, and manner of manipulating gold, tin, amalgam, gutta-percha, oxyphosphate and oxychlorid. The teeth with prepared cavities which were mounted in plaster with rubber tubing on their roots are now wedged apart and filled with these materials. As the working of tin enables the pupil to become familiar with the manipulation of cohesive foils, it is used to a large extent in this course, and is known in the technic department as "student's gold." It is manipulated in the same manner as cohesive gold, except that it is not annealed.

One of the important aims of the course being to develop and train the muscles, the student is required to condense the filling materials by hand pressure. He is taught that the best way to anneal foil is in a tray or on an electric annealer; that the primary requisite in a filling is perfect adaptation; that the direction of force effective in adapting foil to a cavity wall is at an angle of forty-five degrees with such wall; that the force necessary to exert for perfect condensation depends on the size of the plugger point and the thickness of the pellet or fold to be condensed; that the best manner of condensing foil is to step with the plugger from one place to another in regular order over every portion of the pellet or fold as he proceeds; that the surface of the material should be kept free from depressions and irregularities; that a plastic filling material should never be introduced into a cavity which involves more than one surface of a tooth, without supplying the missing wall of such cavity with a matrix; and that unless the physical form of the teeth and their relation to each other is improved, the destructive enemy will have easier sailing than before the cavity was formed.

Since the introduction of this method of teaching operative technics, the most gratifying results have been obtained. The majority of the class by the end of the first year at school have acquired a good working knowledge of operative dentistry and are fully qualified to enter the infirmary at the beginning of their second year; and when they approach a patient for the first time, it is with a very just confidence that they are well prepared to begin the work. Besides learning all the technicalities, they have gained confidence in themselves, and this is necessary if a student is to do good work.

Discussion. *Dr. T. W. Brophy*, Chicago: The supervision of technical work in teaching is one of the greatest improvements in the whole system of dental education. Before that time what the student learned about operations was at the expense of the patient's suffering. Now, however, the student is practically prepared before he operates on the live subject. As we look back it seems remarkable how those of us who studied dentistry in years gone by succeeded. The paper is an index of the progress of modern dentistry.

*Dr. E. B. Owen*, Brodhead: We should not think of employing a surgeon to perform an operation who had not first studied the anatomy of the human body and operated on the cadaver or models. It is just as reasonable to expect a student to operate successfully

on the live subject without first studying the outlines of the teeth and anatomy of the mouth, as well as the operations which operative technics can drill him in.

### EXTRACTION OF LIVE PULPS WITH IMMEDIATE ROOT-FILLING, USING COCAIN AND CARBOLIC ACID, WITH PRESSURE.

By J. J. WRIGHT, D.D.S., MILWAUKEE. READ BEFORE THE WISCONSIN  
STATE DENTAL SOCIETY, AT MADISON, JULY 18-20, 1899.

When cataphoresis swept over us like a tidal-wave it did not sweep us all back into an incredulous sea, for it gave the profession positive proof that the formerly most painful operation could be performed without pain. Principally because of the time consumed this method was not wholly satisfactory, but there are cases which present themselves where time is no object and where cataphoresis is indispensable. I formerly depended upon cataphoresis for anesthesising and extracting live pulps of anterior teeth for immediate root-filling, but found the following method quicker and more simple.

Saturate a pellet of cotton with 95 per cent of carbolic acid and dip into powdered cocain. Place the cotton upon exposed portion of pulp, covering same with vulcanite rubber, and press gently to place with an amalgam burnisher, just large enough to enter the cavity. Maintain the pressure at such a degree that the patient will be conscious of the operation without feeling intense pain. In a few minutes this sensation of pain will pass away, no matter how hard the pressure.

Remove the application, and with a bur cut well into the pulp-chamber. Prepare another application and apply as before. When the pulp no longer responds to pressure, remove the application and pulp extirpation can be accomplished with little or no pain. A fine barbed broach is used for this purpose.

The hemorrhage can usually be controlled by the use of 95 per cent of carbolic acid. In case the flow of blood should be excessive and hard to control, tannic acid may be used in connection with the carbolic, forcing it well up to the apex of the root and allowing it to remain a few moments.

In many cases the pulp can be removed intact, but when the root is flat or constricted and quite inaccessible to a broach, make an ap-

plication of sulfuric acid. This will destroy any living tissue, and after the application of bicarbonate of soda the canal will be found white and clean. By the use of alcohol or chloroform the root is now made thoroughly dry and ready to fill. Following the application of an antiseptic, a deviation is made from the usual method of filling with chloro-percha and gutta-percha. A gutta-percha cone is first placed in the root-canal, and then the chloro-percha is applied, dissolving the point. Another one is then inserted and forced to place. This insures the complete filling of the root without danger of confining air in the canal. In many cases where chloro-percha is used first air is confined in the upper third of canal, and when the gutta-percha point is inserted some of the air is forced through the apical foramen and trouble ensues.

Carbolic acid is preferred—first, because it is a good local anesthetic. Second, it acts as a styptic on the pulp, and thus renders the hemorrhage easier to control. This is especially desirable in anterior teeth, where, if proper care is taken, and the blood not permitted to enter the cavity, discoloration may be avoided to a great extent.

In cases where the cavity is large and easy of access black rubber will be found better on account of its tenacious quality, but where the cavity is small red rubber is preferable.

It has been generally supposed that the least pressure on an exposed pulp would cause excruciating pain, but the pulp is no exception in this regard to any other tissue of the body. Cut off the circulation and produce pressure in any part of the body, and local anesthesia is produced. The painless removal of the overhanging tissue, after the adjustment of a cervical clamp, is a good illustration of the principle here involved. This tissue is normally very sensitive, but the pressure of clamp and rubber-dam produces local anesthesia, so that it may be cut and removed without pain.

The simplicity of this operation should recommend it to every dentist, and the results are more than satisfactory. During the time I have used it my patients have been loud in their praises and appreciate the difference between it and the arsenic treatment.

Discussion. *Dr. H. L. Bauzhaf*, Manitowoc: I see no objection to the use of carbolic acid, but there are some cavities where the decay is slow and deep and where it is very difficult to apply the dam, in which cases there might be difficulty in confining the

carbolic acid. I therefore use alcohol. A 25 per cent solution of pyrozone is very good to stop hemorrhage.

*Dr. F. L. Barney, Viroqua:* I have tried the essayist's methods, and while the tooth retained its color and there was no soreness, it was sensitive to heat and cold.

*Dr. J. J. Wright:* I had no trouble with thermal changes. There has sometimes been slight pericementitis for a day, but not so much as occurs with the arsenic treatment.

*Dr. Crosby, Chicago:* During the past year I have treated many teeth in this way and have used carbolic acid. It is practicable in all the anterior teeth where the pulps are not badly inflamed. With congested pulps you will find it difficult to force anything into the tissue. Carbolic acid is advantageous because of its styptic quality, which would at least minimize the excessive hemorrhage liable with the extirpation of pulps by this method. Because of this trouble I almost never fill the canal at the same sitting. When the teeth are very badly broken down by extensive decay a thin matrix of German silver can be fitted closely to the tooth, and the rubber applied over that. This forms a receptacle so that the cocain will not be forced out of the tooth but directly downward toward the pulp. Several months ago there was a man in Chicago who disclosed the "secret" of a method similar to this and charged \$25 for the information. It was not a new thing at that time, but had not been advertised very extensively.

*Dr. A. H. Peck:* I have had considerable experience in this practice, as I have been comparing the action of cocain and eucaïn with it. There has been sensitiveness to thermal changes in some cases where cocain has been used, but nothing like that resulting from arsenic, where it seems as if the drug had penetrated the tubuli and been absorbed into the soft parts about the gingival portion of the teeth. I have seen cases after the use of arsenic which proved very sensitive to thermal changes and had to be treated carefully for months. In a majority of cases where cocain was used I have seen after the lapse of one, two or three days considerable tenderness developed in the apical tissue especially, so that the slightest pressure caused considerable pain. Eucaïn B used with pressure under similar conditions will not produce the same degree of anesthesia that cocain will, for a larger quantity and longer time are necessary to secure similar results, but I have never observed any tenderness



of the teeth after eucaïn was used. The hemorrhage after immediate removal of pulps is sometimes copious, and I have found that witch-hazel freely used would stop the flow in a very short time. After using it freely I seal some mild, nonirritating antiseptic in the canal and let it rest a few days, and generally no tenderness develops.

*Dr. J. J. Wright:* There are cases where cocain is not advisable, especially where the caries has extended beneath the gum, but in normal cases I prefer carbolic acid because it is a heavier fluid and can be pressed in better. Alcohol evaporates too soon.

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**MOUNTAIN SICKNESS.**—A very curious form of mountain sickness has shown itself among the laborers engaged on the Jungfrau railway. After living ten days at a height of about 8,000 feet an engineer began to suffer from a throbbing pain in his teeth, and his gums and his teeth were very much swollen. After five days the ailment vanished entirely, leaving no traces behind, and no defect could be found in the teeth. All the workmen, both Swiss engineers and Italian laborers, suffer in a similar manner.—*Westminster Gazette.*

**MOUSTACHED WOMEN.**—A learned German, who has devoted himself to the study of physiology, anthropology and allied sciences, makes the rather startling assertion that moustaches are becoming commoner among women in the present day than in the past. He says that in Constantinople, among the unveiled women that are to be met, one out of ten possesses an unmistakable covering of down on the upper lip. In the capital of Spain again, the proportion of ladies with the masculine characteristic is said to be quite equal to that observable on the Golden Horn. An American medical man states that in Philadelphia fully 3 per cent of the adult fair sex are similarly adorned, and probably the proportion would be still larger but that many women take the trouble to eradicate the unwelcomed growth by the application of depilatory preparations.—*Pharm. Jour.*

**ETHYL BROMID NARCOSIS.**—The increasing use of ethyl bromid renders any information regarding it of particular value. Dr. Schmeden, of Oldenburg, writes that he has employed chemically pure ethyl bromid for a number of years in minor operations on the throat, nose and ear. Children may be held by a nurse, but adults are seated on a chair provided with a head-rest. The writer employs the usual chloroform mask, which he covers with several layers of mull, over which is fastened a layer of parchment paper. The entire quantity of ethyl bromid is poured into the mask at once, and the latter immediately placed tightly over the nose and mouth. Fifteen gm. are sufficient for children; about 20 gm. for adults. Fresh mull and parchment paper are used for each narcosis, and so is a fresh bottle of ethyl bromid. No unpleasant by-effects have ever been observed from a pure article. The ethyl bromid appears to be particularly useful for employment on children.—*Mercks Report.*

## Digests.

**PATHOLOGY OF ALCOHOLISM.** Scarcely any disease, perhaps none, exerts so extensive a pathological influence as alcoholism on the organs, tissues and fluids of the body. The paralyzing effects extend throughout the nervous system from its center to its periphery. This paralytic effect is seen not only in the body, but in the intellect and moral sense. The principal degenerations in alcoholism are fatty, fibroid and atrophic. Fat is substituted for normal tissues; alcohol withdraws water from the tissues, and thus they become dry and hardened and at length assume a fibroid character; through lack of proper nutrition the cells become shrunken and atrophied. By these degenerations the anatomical integrity of organs is destroyed, partially or wholly, and their functional activity is impaired. Thus the whole system suffers and in time becomes a wreck. Alcohol has been aptly termed "the genius of degeneration."—*J. W. Grosvenor in Quar. Jour. of Inebriety, July, 1899.*

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**STOMATITIS DUE TO MILK.** P. Ritter, a Berlin dentist, reports two cases which were unusually hard to cure. The first was that of a child fifteen months old, who had been under treatment for three weeks. Milk had been prohibited, the mother's attention having been attracted by the "large quantities" of milk which the child drank. The lower jaw presented a necrosis of the gum, and a few teeth were loosened. Painting the gum with undiluted tincture of iodine and carefully cleansing it with a solution of permanganate of potash cured the affection, although two of the loosened teeth had to be removed. The second case was that of a girl 25 years of age, who had been ordered a milk cure. A week after taking raw milk the gums began to swell, and eight days later fever came on. In spite of the application of a solution of alum, the affection invaded the throat and chills occurred. The whole mouth was covered with an aphthous deposit, and particularly the region of the lower third molars bulged out and was covered with gray plaques. Painting the parts with undiluted tincture of iodine, conjoined with a mouth-wash of acetate of alum, did very well. The patient was free from pain next day, and was able on the third day to take food without inconvenience.—*Allg. Med. Centralist.*

**REFLEX PAIN FROM MOLAR.** I was called at 1 a. m. to see a young man 24 years old, who, the message said, was dying. When I reached the house he was trying to lie on a couch. His face was flushed and eyes congested; he was perspiring profusely, unable to remain in any position for more than a minute at a time, short spasmodic attempts to breathe, and complaining solely of constricted pain over the heart, over which he kept his hand constantly. Could obtain no history of the case from him, but from family learned that he had taken very suddenly in the manner above described about two hours before. Had had toothache in lower left molar for about a week and had used camphor freely on gum, and more freely than usual just before attack came on.

Gave him aconite 3x every fifteen minutes, and within one hour he was resting quietly. Saw him the following two days, feeling quite well with exception of some toothache, but with no more chest pain. Was called again the second night and found him worse than the first time. I again gave him aconite 3x, which seemed to give a slight relief, but finally was compelled to give him an opiate, as it took two men to restrain him in bed.

I now knew that the trouble must come from his tooth, for when it ached he had no other pains, and when had chest pain his tooth felt easy. The next day I took a dentist with me, who pulled the tooth, which was an unusual one, having exostosed roots that had extended quite deeply into the bone. His recovery was rapid after the extraction.—*Dr. C. B. Kern in Med. Visitor.*

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**DR. HENSON ON FAITH HEALING.** It is well known that Dr. P. S. Henson, the popular Chicago Baptist minister, has a defective eye. We go to hear him preach once in a while, and have got accustomed to the peculiar squint of that optic—in fact, we rather like it. But a good man and his wife who are members of the Henson household of faith have felt for some time that their pastor would be much improved if the lame eye could be made like unto the other. These persons are firm believers in the faith-cure theory. Why should their beloved pastor not have two good eyes as well as one? They went to see him about it.

"We have been praying for you that you may have two perfect eyes," they said to the doctor, "and have come to pray with you. Will you not ask the Lord right now to give you a new eye?"

Dr. Henson's reply was startling.

"What kind of teeth have you?" he suddenly asked the brother.

"Why—why, that's a strange question," he stammered, "but I don't mind telling you that my teeth are mostly false."

"What kind of teeth do you use, sister?" he asked of the other.

"Same kind," she frankly admitted.

"Well, good friends," rejoined the doctor, "you go and ask God to grow some new teeth in your mouths. According to your theory He will do it without delay. When you get your teeth, come around and we will see what can be done about that new eye!"

This happened some little time ago. The good people are still grinding on artificial molars, and Dr. Henson still looks down on his great congregation with one eye. But he can see farther with that bright optic than most people can with two.—*Epworth Herald*,

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**EYE AFFECTED BY PATHOLOGICAL CONDITIONS OF THE TEETH.** Lagleyze (*Archives D' Ophthalmologie, March, 1899*) claims that the following ocular affections may sometimes be of dental origin: Epiphora, blepharitis, conjunctivitis, keratitis, glaucoma, spasm of accommodation, mydriasis, blepharospasm, strabismus, neuralgia, photophobia and amblyopia. Caries or periostitis of upper molars is not an infrequent cause of a diseased condition of the eye. Hypersecretion of the lachrymal gland is often of reflex origin, the dental irritation being communicated by filament of the orbital branch of the superior maxillary division of the trigeminus.

Many cases have been published which show the possibility of glaucoma being a reflex affection. Mention is made of a case in Abadie's clinic; sclerotomy had been done twice without any beneficial results. However, upon the extraction of a diseased tooth the intraocular tension was quickly relieved. Paralysis or paresis or accommodation may be caused by odontalgia. It is a common observation that detail neuralgias cause a hyperesthetic condition of the eye. Galezowski says that monocular mydriasis, eight times out of ten, is due to dental affections. However, Lagleyze regards this statement as an exaggeration. Redard, Mitchell and others cite cases of strabismus in infants during the period of dentition.

Vasomotor paralysis, especially in children, causes a congestion of the conjunctiva and lessens its resisting power, and as a result

the eye is more susceptible to the action of microorganisms. Power reports a case of ulcer of the cornea and anesthesia of the parts supplied by the ophthalmic branch. After extraction of diseased teeth the corneal trouble was much improved and the anesthesia entirely disappeared. Abadie is of the opinion that stricture of the lachrymal duct is very frequently caused by a periostitis extending slowly up the superior maxilla. It is advisable to carefully examine the teeth in all ocular diseases which are of doubtful etiology and which do not readily yield to ordinary methods of treatment.

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CYST OF SUBMAXILLARY REGION. By P. C. Fenwick, M.B. Lond., M.R.C.S., L.R.C.P. A man aged 42 was admitted under me complaining of a tumor the size of a golf-ball lying close to the symphysis of the lower jaw. It has appeared during the last three months. On examination it is hard and fixed to the symphysis. Fluctuation is obtained on deep pressure. No pulsation. It can be felt pushing up the floor of the mouth and extending backward towards the base of the tongue. I diagnosed a cyst in connection with the thyro-glossal duct. An incision was made transversely at about an inch below the symphysis and after a long dissection the wall of the tumor was exposed. It was firmly fixed to the jaw, and on dissecting further a band could be felt running upwards to the base of the tongue. The band was ligatured and the cyst then opened and a quantity of cheesy material evacuated. The wound healed well and the patient was discharged with a clean scar and no swelling perceptible.

Ten weeks later the patient reappeared with an exactly similar swelling in the old position, and I again operated and found exactly similar conditions to the first operation. The cyst was opened and thoroughly explored. Its walls were very thick and spongy, and the contents of the sac were of the same thick cheesy material as at first evacuated. I curetted the walls, and after swabbing with chlorid of zinc solution closed the wound partially and plugged the cavity with gauze. There has been free discharge of thin colorless fluid since, but the wound is healing, and I hope the cavity will become obliterated. I believed the cyst to be a dermoid, but was unable to find anything in the evacuated material beyond the caseous material. The duct ligatured at the first operation I believe was the unobliterated duct.—*Brit. J. D. S., Nov. 1899.*

**TREATMENT OF CERTAIN FORMS OF NEURALGIA BY THE INJECTION OF OSMIC ACID.** By William H. Bennett, F.R.C.S. Eng. The patient is a woman, aged 66 years, who was admitted into St. George's Hospital. For eight years she had suffered from spasmodic tic. At its onset only a small area above the left eyebrow was affected, but by degrees the pain extended until the three divisions of the fifth nerve were all more or less involved. Within the eighteen months prior to her admission the pain had become more acute but somewhat less diffused, and her general health, as is common in these cases, had not been much affected excepting from loss of sleep, which during the previous nine months had reduced her considerably. Upon her admission she was found to be a fairly nourished person with an anxious aspect. At intervals varying from ten minutes to several hours she was seized with attacks of pain (with spasm) which, commencing just below the left eye, extended round the orbit and over the forehead, finally concentrating about a spot near the center of the vertex of the skull. Occasionally, but not always, the pain shot downwards along the lower jaw. The attacks were easily started by a drink of cold water, by a cold draught of air on the cheek, or by manipulation. The tongue was free from pain and taste was unaffected. As is usual, the severity of the condition varied a good deal at different times, but in the aggregate the symptoms reduced her life to such a miserable state that she was prepared to submit to any treatment, however severe, which promised to afford even temporary relief. As all measures at the disposal of the physician, including the continuous current, had been tried without avail, it was clear that nothing remained but surgical interference. Under ordinary circumstances two surgical alternatives suggest themselves in such a case: (1) the exposure and avulsion of the distal end of the three divisions of the trigeminal nerve; and (2) the resection of the Gasserian ganglion. The former operation is uncertain and not altogether satisfactory; the latter is too severe an operation in itself and, if current reports are to be credited, its immediate risk is too great to render it an operation to be adopted excepting under very extreme circumstances. Indeed, so far as I am concerned, it is an operation about the justifiability of which under any circumstances there is room for some doubt; if, however, the operation is right in any case it certainly would have been so in this. Fortunately I have of late had



a considerable experience of the treatment of certain forms of neuralgia by the intraneural injection of osmic acid. This method does not seem to have had much trial in this country. My previous experience of the treatment having been entirely favorable, I adopted it in this patient, injecting a solution (1.5 per cent) of osmic acid into the terminals of the three divisions of the fifth nerve. The immediate effect of the injections was to almost end the pain, and what remained disappeared by degrees in the course of a few days, leaving the patient perfectly free from discomfort and sleeping well, which she had not been able to do for several years.—*Lancet*.

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**CANCER OF THE SKIN.** By Jonathan Hutchinson, F.R.C.S. London. In epithelioma of the lip or "pipe cancer" the lip hardens and cracks under the pressure of the dirty pipe, the sore becomes warty at its edges, a cauliflower-like surface is developed, the glands under the jaw rapidly become involved, and fatal systemic infection is complete. In striking contrast with this is the cancer (flat-celled) of the eyelid or cheek, which may run for twenty or thirty years and destroy almost the entire face without involving a single gland or threatening the life of the victim. This is not a matter of region solely, because we may also have upon the cheek the "crateriform ulcer," which, though rare, is rapidly fatal.

In other cases of skin cancer the disease may make its appearance in freckles, which after childhood are often to be regarded as abnormal. Their presence also often coincides with a tuberculous tendency. An abnormal deposition of pigment is always to be regarded with suspicion. Moles are frequently the starting point of malignant disease, usually sarcoma, especially those which are not congenital. Curiously enough, they may be the initial point of a general metastasis, and yet be very little affected themselves.

The constitution of the skin in which cancer originates has a marked influence upon its character. Rodent ulcer, for instance, is extremely mild and superficial upon the temple, but much deeper and more rapid upon the eyelid or the alæ of the nose. Xeroderma pigmentosum is a freckle cancer in the young, and in the "second childhood" of senility we find again a tendency to develop freckles in which malignant disease has its origin. The black patches which grow around the eyelid in old women are especially liable to degenerative changes of this description. Cancer is emphatically a

product of senile tissues, and while parasitic origin may some day be demonstrated, all attempts so far are conspicuous failures. The process is a disturbance of cell-nutrition, of internal balance, quite independent of any external cause. It is, in the nature of it, a self-originating process in the senile period.

Inheritance, though not a very common factor, is unquestionably a potent one. Many of the cases of cancer at an unusually early age that I have seen have been in children of cancerous parents. The disease does not necessarily attack the same organ when transmitted, more frequently not. What is inherited is the tissue tendency to rebel, and this may take place in any organ or in connective instead of epithelial tissues, giving rise to sarcoma instead of carcinoma.

As to the increase of cancer, I think it is greatly overstated, though there can be little question that cancer is actually increasing slowly but steadily; simply for the reason that the proportion of those surviving to middle age, and those becoming liable to it, is increasing.—*Med. Press and Cir., Nov. 1899.*

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**SIMPLE CASES OF PERICEMENTITIS.** By E. K. Wedelstaedt, St. Paul. Read before the Minnesota Association, July, 1899. Let us take a typical case. A lady walks into the office and says: "I have not slept any all night. There is some trouble with one of my teeth. It is longer than the rest, and every time I touch it with the other teeth or my tongue it hurts me." We find the trouble is in an upper right second bicuspid. It has a large mesio-occlusal filling in it. The patient says the pulp has not been destroyed. The first molar and the first bicuspid (the adjoining teeth) are in position. I will go into detail in handling this case. The gum is first examined to note its condition. The occlusion of the teeth is next examined. The rubber-dam is then applied over molar and bicuspids. Then I wash the dam and teeth with a disinfectant, obtaining as nearly as possible surgical asepsis. Very frequently I ligate the lame tooth with a piece of No. 25 Irish linen thread about eighteen inches long. Tension is often placed on the thread with good results. I should then take a sharp spear-pointed drill that was surgically clean, place it on the engine and drill a cavity through the filling if necessary, between the lingual and buccal triangular ridges. As soon as the pulp-chamber is entered, the drill would be

withdrawn and the cavity somewhat enlarged by using a sharp and surgically clean bur. If on removing the drill from the pulp-chamber it be followed by a flow of dark red blood, I should, so soon as the cavity in the crown of the tooth had been enlarged and the flow of the blood slightly checked, remove the pulp with a surgically clean broach. As soon as the hemorrhage had subsided, the pulp-canal should be wiped out with dry cotton until no signs of moisture were visible. Some oil of cloves should be introduced into the pulp-canal, the canal dressed, and the occlusal cavity in the crown of the tooth filled with gutta-percha. I do not recall at the present time ever having a patient return and complain of pain where this method had been followed.

Now let us look at this again. If on the withdrawal of the drill from the pulp-chamber, it be followed by pus (the color and variety do not make any difference), I would not introduce a broach into that canal. By the gentlest means at hand I would get all the pus out of that cavity possible. There should be no attempt made to cleanse it. On the contrary, let it alone. I should treat it with some oil of eucalyptus and with exceeding great care work it into that canal. Then place a small piece of cotton into the pulp-chamber and fill the occlusal cavity in the crown of the tooth with gutta-percha. Five or six hours later I would again adjust the rubber dam, get as near surgical asepsis as I could, remove the temporary filling and cotton and cleanse that pulp-canal. All the instruments that I should use would be as surgically clean as I could make them. The pulp-canal would be treated precisely as I have described in the first mentioned case, and the patient dismissed with instructions to see me, provided there was return of the pain. An appointment would be made to return one week later, when without further treatment I should fill the root of this tooth.—*Review, Nov. 1899.*

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**THERAPEUTIC VALUE OF ALCOHOL.** At the State Medical Association Dr. Thomas J. Hillis (*Medical News*, Nov. 4) said that until recently we had very little definite information as to the medical properties of alcohol. There had been a good deal of talk, mostly coming from those who were fanatically opposed to its use, and every good effect had been denied to it. Some even went so far as to say that it was not a stimulant. Not long ago Professor Atwater showed that it was used by the system as a food. There

was no doubt that in various allotropic modifications which it underwent in the chemical laboratory of the body it developed many other properties beyond that of stimulation. It was a tonic, heat-producing food of the most valuable kind. It had been abused and would be abused, but the abuse of a thing could not logically be argued against the proper use of it.

It was in conditions of fatigue particularly that alcohol was of special service. It was much better than coffee and produced its effect more rapidly. When great fatigue existed it was promptly burned up in the body and did not produce its ordinary intoxicating effect. Under these conditions from eight to ten ounces of it even might be taken and produce only slight stimulation. Like shavings in a glass furnace, it was burned up by the fire of muscular metabolism. Much of the abuse of alcohol by the medical profession had come from the fact that it had been given too early or too late in the course of a disease, or that too much or too little of it had been given. Its administration must not be left to the nurse, but must be assumed by the doctor himself. It must be regulated not according to any fixed rule, but according to the effect produced upon the patient.

The primary factor in the matter was the stomach. If the stomach took food well, then alcohol was not needed; but when food could not be taken, alcohol was of the greatest service. Especially it must never be given if it disturbed the stomach. One day it might be poison in a given case and the next day it might do good. Alcohol should never be taken at the beginning of a journey, for it lowered the temperature and increased the tendency to fatigue. At the end of a journey it was usually of very great service. At the beginning of diseases that were accompanied by excitement it would do harm. In exhausted conditions of the patient, especially when nutriment was not taken well, it was of the greatest service. It acted in four minutes, while beef tea required twenty to act and was not so efficient. Alcohol should never be taken immediately after meals, for it paralyzed the digestive ferment, coagulated the albuminoids, relaxed the walls of the stomach, and might stop the process of digestion entirely. Three hours after digestion, especially if the fatty acids were present, causing the condition known as pyrosis, alcohol would neutralize the fatty acids, stimulate the peristaltic action of the stomach, and get rid of the uncomfortable feel-

ing. Dr. Didama and Dr. H. O. Marcy dissenting, Dr. Hillis said that alcohol was under all circumstances the best tonic that we had, and that for it we should sacrifice willingly most of the drugs of the pharmacopeia.—*N. Y. Med. Jour.*

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EXPERIMENTAL STUDY OF CEMENTS. By J. E. Hin-  
kins, D.D.S., Chicago. Read before Chicago Dental Society. After  
I had experimented with a number of the American cements and  
found an abundance of arsenic in the oxid of zinc, I thought I had  
overlooked some important point, so went to Prof. Long of the  
Northwestern University Medical School, who has gone over every  
cement I have here, and has indorsed my experiments to be correct.  
I may say here that I have used the Marsh test, the Reinsch test,  
Fleitmann's test, the sulphureted hydrogen test, etc., and found  
arsenic in the specimens with all of the different tests. The Marsh  
test is considered the most universal test—that is, you can come to  
some conclusion as to the amount of arsenic found.

In examination of the cements I made separate tests of the solid  
and liquid of the original preparation, and also of the mixed pellets.  
I made the Marsh test of these various substances and, as confirm-  
atory of the stains secured, used the hypochlorite reaction, and the  
very sharp reaction with silver nitrate after oxidation of the stain  
with nitric acid. This is unquestionably the most characteristic of  
the primal tests. I have considered nothing as indicating the pres-  
ence of arsenic which did not respond fairly to this test. The sub-  
stances which gave the Marsh test will also give the Reinsch test.  
The best test for arsenic is the Marsh test, confirmed by nitrate of  
silver. The Reinsch test is not so distinctive, because the necessary  
confirmation is not so easily carried out.

*Fleitmann's test.* Generate hydrogen by heating to near the  
boiling point a strong solution of caustic soda or potash and some  
pieces of zinc. Drop into the test tube a little arsenical solution,  
and spread over the mouth of the tube a cap of filter paper moist-  
ened with one drop of solution of nitrate of silver. Again heat the  
tube, taking care that the liquid itself shall not spurt up onto the  
cap; the arsenic is reduced to arsenicum, the latter uniting with the  
hydrogen as in Marsh's test, and the arseniureted hydrogen passing  
up through the cap reacts on the nitrate of silver, causing the pro-  
duction of a purplish black spot.

The results of the different cements are as follows:

W. V-B. Ames, Metalloid.	{ Powder. Slight arsenic reaction. Liquid. No reaction.
S. S. White Co., Harvard.	{ Powder. No reaction. Liquid. "
C. Ash & Sons, Excelsior.	{ Powder. " Liquid. "
H. D. Justi & Son.	{ Powder. Faint arsenic reaction. Liquid. No reaction.
Britton, Vitrified.	{ Yellow Powder. Good arsenic reaction. Gray " " " Liquid. No reaction.
Hammond, Oxid.	{ Yellow Powder. Fair test for arsenic. Gray " No " " Liquid. Nothing.
C. A. S., Gelb.	{ Powder. No arsenic test. Liquid. " " "
Cleveland, Standard.	{ Powder. No arsenic reaction. Liquid. " " test.
Caulk's Diamond.	{ Powder. Strong arsenic reaction. Liquid. No arsenic test.
Fossiline.	{ Powder. Strong arsenic test. Liquid. Doubtful faint reaction.
Lynton.	{ Powder. No arsenic reaction. Pearl gray powder. Fair arsenic test. Liquid. No arsenic reaction.
Onyx, Johnson & Lund.	{ Powder. Strong arsenic reaction (trace of antimony). Liquid. No arsenic test.
Enamel, Johnson & Lund.	{ Powder. Strong arsenic test. (trace of antimony). Liquid. No arsenic test.
Lithos, Dental Protective Supply Co.	Powder. No arsenic.

I have taken the utmost care with these reactions, and if there was any doubt I gave it to the manufacturer. For the pellets I found the tests to agree with those made on the powders. Of the powders I took about a half gram, for each test, except Lynton's, when the amount was  $\frac{1}{4}$  gram. The pellets were rather small for exact tests in several cases, but I gave the substance the benefit.



Inasmuch as most zinc ores contain arsenic, the presence in the prepared oxid almost of necessity follows. However, as there are some well-known ores in this country which are quite free from arsenic, manufacturers should be able to furnish an oxid without difficulty and at a moderate price.

I should not have been surprised at finding arsenic in the phosphoric acid liquids, as some of the acid of commerce is made by processes which would not exclude arsenic. The investigation of the acid liquid would be a very interesting question, as they seem to vary greatly in composition and behavior. I made no special tests in this direction, but noticed this fact incidentally when making the arsenic test.—*Review, Oct. 1899.*

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**TREATMENT OF PULPLESS TEETH BY IODOFORM FUMES UNDER PRESSURE.** By C. V. Vignes, D.D.S. Read before Southern Branch of National Dental Association, Feb. 10, 1899. This treatment was first practiced in 1891 by Dr. John C. Blair, then demonstrator of operative dentistry at the Louisville College of Dentistry. It was used by him and the students in over fifteen hundred cases during the time that I was there, and only two failures in obtaining the usual good results were recorded against it.

Iodoform is sublimated at a temperature of about 240 degrees F.—i. e., it passes directly into vapor, which upon cooling condenses again into iodoform less a small percentage of iodine that is set free, and which, being a strong disinfectant and antiseptic, and also very penetrating when in its vapor state, especially so when under pressure, goes to every part of the tooth under treatment, even into the tubuli of the dentin, disinfecting and rendering perfectly aseptic every portion of the tooth with which it comes in contact; and the iodoform crystallizing against the walls of the root-canal up to the apical foramen gives further assurance of asepsis.

To obtain the vapor and pressure required to force it into the pulp-chamber and root-canal, Dr. Blair devised an instrument probably used by many present. It is very simple of construction, consisting only of a chamber in which to put the iodoform crystals, and a rubber valve attached to press the vapor when generated by heat through a needle-shaped tube into the diseased tooth.

For convenience, have divided pulpless teeth under three heads:

1. Those containing a dead pulp that has given no trouble. 2. Those having a fistulous opening through the gums. 3. What is commonly known as blind abscess.

In the first apply the rubber-dam, or use any other method to keep the tooth dry, then make an opening into the pulp-chamber just large enough to insert the point of the needle of this instrument, and after heating the iodoform chamber over the alcohol lamp until by slight pressure of the bulb a thin vapor is emitted, place the end of the needle in the opening of the tooth and by pressure on the bulb force the vapor into the pulp-chamber. Use the instrument for five or six seconds, open up your cavity, and you will find that the vapor has penetrated the pulp-chamber and root-canal. Then you may clean out canal, use instrument again, and proceed to fill immediately—sure of no aftertrouble.

Under heading No. 2 use the instrument as before mentioned, and try to pass the vapor through the tooth out of the fistulous opening. If you succeed in doing this (and you can in most cases) one treatment is enough, and you can go on and fill the tooth even if there is slight inflammation of the gums and surrounding tissues.

Where you suspect a blind abscess the treatment is the same, but I should not advise immediate filling. Use some temporary stopping and have the patient return in two or three days, when you can treat again and fill at the same sitting.

Again, I will point two instances where the use of iodoform in this manner is very effective: 1. Where you fail after repeated attempts to remove all of the pulp from the root-canal, you can so desiccate and encase the remaining portion in iodoform as to render it inoffensive and make it form part of the root-filling. 2. You can fill with a solid deposit of iodoform the very small root-canals better in this manner than you can with any other material, and this done, you have an ideal root-filling—one that is together impermeable and antiseptic.

There is, however, one slight objection to this method of treatment, and that is the disagreeable odor of the burning iodoform. To obviate this I used, at the suggestion of Dr. Montgomery of Chicago, equal parts of ground coffee and iodoform, but found that while I destroyed in a marked manner the offensive odor, I failed to obtain the happy results that I had without the coffee. The fumes with the coffee become laden with carbon, lose their penetrating

character, and cannot then be forced into the small root-canals, or even after a time through the needle of the vaporizer.

In treating teeth in this manner three rules should be followed: 1. Always keep the tooth absolutely dry. 2. Never attempt to pass a broach or any other instrument up the root-canal before first applying the vapor. 3. Don't use too much heat in generating the vapor, for this will liberate more iodine than is wanted, which will discolor the tooth and necessitate the use of hypersulfate of soda to remove the discoloration. Thus in a few minutes you can accomplish with certainty what requires patience and sometimes weeks of tedious work to do by any other method.—*Cosmos*, Nov. 1899.

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SEQUELÆ OF ADENOID OR LYMPHOID TISSUE IN THE NASO AND ORO-PHARYNX. By Wendell C. Phillips, M.D., New York. Read before New York Odontological Society, April 18, 1899. Hackneyed as the subject may seem to the members of this society, those who are so often brought face to face with the resultant conditions, even to retarded mental development, bone deformities and deaf-mutism, should continue to exhibit the danger signal until all practitioners of medicine everywhere, not excluding your own profession, come fully to realize how dangerous they are to child life. One day's experience in any clinic for aural or nasal diseases will tell a convincing story of the results of disease of these glandular structures.

A concise description of the chain of lymphatic glands found in the naso and oro-pharynx has been given by Glutsmann: "The lymphatic tissue appears in an aggregated as well as disseminated form, and is distributed uninterruptedly throughout the pharynx and naso-pharynx." "Waldeyer very appropriately gave it the name of lymphatic ring of the pharynx." "Its position is almost vertical, and beginning at the vault of the naso-pharynx with the pharyngeal or Luschka's tonsil, it extends to the orifice of the Eustachian tubes, where we have a larger aggregation of follicles, the tubal tonsil." "Turning downward along the posterior edge of the soft palate and around the posterior pillar, it reaches the faucial tonsil and across the base of the tongue called the lingual tonsil" or tonsil of the tongue.

It must be remembered that these structures are normal to these parts; that in the healthy condition they are not visible to the eye,

not even the faucial tonsil, and it is only when they become permanently enlarged as a result of disease that they become important factors in producing the many and grave diseases of the surrounding structures.

Disease of these glands is found in all climates and all countries in varying degrees, and there is much variance of opinion as to cause. There can be no doubt that heredity plays an important *role* in causation, enlargement of these glands having been observed in children born even before term. Frequent colds and neglected catarrhs may also be considered as causes. They at least greatly aggravate a case whose tendency is to hypertrophy. It is of course a disease which manifests itself during child life. It is much more common than is usually supposed, and many cases which have sufficient enlargement of the glands to produce serious trouble, especially to the ears, do not manifest the marked symptoms supposed to be characteristic of the disease. To merely mention same will suffice here. Facial expression, mouth-breathing, restless sleep accompanied by snoring, sucking of air, and occasional stopping of the respiratory act, dead voice, difficulty in eating or nursing, anemia from lack of proper oxygenation of the blood, excessive discharge of mucus or muco-pus from nose and throat, frequent colds, almost constant bronchitis, deformity of chest walls, dull and listless appearance, suppurations of the middle ear, and a catarrhal inflammation of the middle ear, accompanied by a peculiar bluish-red color of the membrana tympani, which I believe to be almost pathognomonic of the disease; and in the later stages the various deformities of the superior maxillary bone.

The presence of great masses of adenoids in the vault changes to a large degree the normal physiological functions of the nose and nasopharynx. Instead of a respiratory organ it becomes an obstruction to respiration and a general disturber of the process, and the epithelial changes in the mucous membranes of the nose and nasopharynx finally result in a chronic catarrhal development. In aggravated cases the operation for removal brings about such a marked relief of the symptoms, especially those relating to sleep, that during the first few nights following the parents become alarmed at the extreme quietness which prevails. One mother remarked that the child was so still that she thought he must be dying or dead.

The diagnosis of enlargement of the faucial tonsils is easily made by simple inspection. In adenoid cases it is not so easy, unless one has had much experience. There is usually some symptom which leads to an examination. It may be the facial expression, the voice or discharging ears. Most authorities recommend that the diagnosis be made by introducing the finger into the vault, and by so doing feel the glandular mass. This procedure is very painful, makes the patient gag and strangle, and also makes the little patient one's enemy for life. I rarely find it necessary to adopt this method. Instead, by a little gentle persuasion one can make a far better examination and diagnosis by means of the tongue depressor and a small mirror. This procedure is not painful, makes the patient a friend, and gives confidence to allow any further treatment of the throat. There are many cases which present symptoms so marked that a positive diagnosis may be made without resorting to either method.

It has been proposed to make a diagnosis by means of the Valsalvan method; that is, by attempting to inflate the ear by holding the nose, failure to accomplish the act indicating the presence of adenoids. This method is mentioned only that it may be condemned, as the danger of forcing some of the ever-present infective secretion into the Eustachian tubes, where it is prone to excite severe inflammation, renders it an unsafe procedure.

*Sequelæ.*—Of the various diseased conditions depending upon and resulting from disease and enlargement of the glands in the naso and oro-pharynx—i. e., the adenoids and the faucial tonsils—a few may be mentioned. The general health is always more or less impaired, there is apt to be retardment of the general growth and physical development of the child, and anemia. This results from the lack of proper oxygenation of the blood due to the reduced quantity of air, a condition which continues both night and day. It is also due to the frequent colds, the unhealthy secretions, and the almost constant bronchitis to which these patients seem to be subject. Among the most marked results of operation are the increased weight, better color, and improvement of chest conformation.

In enlargement of the faucial tonsils we have the attacks of catarrhal, follicular, or suppurative tonsillitis, and later on a tendency to a degeneration which might be termed cheesy. These masses of cheesy-looking, foul-smelling material are found deeply imbedded in the crypts.

Chronic catarrh of the nose and throat may be looked for. In severe cases there occasionally may be found considerable deformity of the chest. The sternum becomes prominent, and the sides of the chest fall in, giving the pigeon-chested conformity. But even where no such deformity exists there is a general arrest of development. After operation the gain in flesh is very rapid, often amounting to several pounds in a single month.

Of all the accompanying and resultant affections from adenoids and hypertrophied tonsils, that to the ear is fraught with the gravest dangers and most serious consequences. It may be either a catarrhal deafness or a suppurative process. In either case the condition is serious, threatening the child with partial or total loss of hearing, unless prevented by operative interference. These growths are the most potent causes of attacks of middle ear suppuration, and when such attacks are frequent one may almost be sure to find the cause in the naso-pharynx. That they are many times the cause of total and permanent deafness in children has been proven time and time again, and deaf-mutism from this cause is a deaf-mutism which might have been prevented if parents, dentists and physicians could have been alive to its seriousness.

Frankenberger claims that the percentage of adenoids in deaf mutes is much higher than in the general run of children, and he substantiates his claim by a report of the examination of 159 deaf mutes. Adenoids were found in 94 or 59.49 per cent, whereas children in general have adenoids in the ratio of about 6 per cent. This remarkable frequency of adenoids in deaf mutes he considers as certainly not accidental, but that they stand in some causal relation to deaf-mutism.

The ears of all public school children should be tested, and such recommendations made to teachers and parents, especially if adenoid growths and hypertrophied tonsils exist, that the child may be relieved by operation and if possible cured. Schæling has said, "The results upon its later mental development of a marked diminution of hearing in a child are, unless compensated for by other instruction, decided and permanent, affecting the understanding, character, self-confidence, and at a later period the ability of self-support, mental tools the possession of which is valuable and the want of which can never adequately be supplied."

As to the effect of enlarged faucial tonsils and adenoid tissue in



the pharyngeal vault upon the development of the superior maxillary bone and the conformation of the teeth, opinions vary with good reason. It seems to this writer that too much stress has been laid upon these conditions as causative factors, both by dentists and nose and throat specialists. So far as the faucial tonsil is concerned, it can have but little effect upon the condition mentioned except in the severest cases and where the hypertrophy is very great.

It does not seem feasible to argue that merely because of the fact that the mouth of a child is more or less constantly open when suffering from adenoids, the atmospheric pressure within the mouth would push the hard palate upward, as Hooper suggested. I certainly should not consider a V-shaped arch a diagnostic sign of adenoids, while, of course, it might lead one to search for them. Talbot says: "There are many cases of contracted arches where mouth-breathing does not exist; there are also many cases of normal arches where mouth-breathing is present." Eames remarks that "it has been said that adenoid growths in the pharyngeal vault cause irregularities of the teeth. I do not believe this to be the case, but rather that the dental irregularities are only another expression of the same cause that operates to produce the adenoid growth. In other words, there is one cause common to both, yet this cause may not be able in all cases to produce both. The bone-developing, vital movement may be strong and active by inheritance, while the lymphatic glandular system is weak."

Bryan states that "a brief reference may be made in connection with mouth-breathing to the changes in the arch of the hard palate, which in the very young becomes altered, assuming an acute bow or V-shape." "This deformity results from a combined pressure of the buccal muscles exerted on both sides, and a column of air constantly striking the hard palate." "Kooner distinguishes between the alterations of the upper jaw of children who have suffered from nasal stenosis before the shedding of the deciduous teeth and those which result from nasal stenosis during the change of teeth." "In the first instance there occurs generally the cupola-shaped elevation of the palate; the alveolar border, which naturally forms a semicircle, assumes the form of an ellipse, but there is no change in the position of the teeth." "If the nasal stenosis exists at the time of the change of the teeth then the lateral alveolar borders are approximated, while the anterior border is pushed forward, and the high

arch of the palate increases until it encroaches upon the cavities above. The teeth in those cases assume a very irregular shape."

A long experience of active work has led me to conclude that deformities of the superior maxillary bone accompanying adenoids and hypertrophied tonsils are the exception rather than the rule. In other words, one will find many cases which have adenoids and hypertrophied tonsils to a degree sufficient to require operative interference, to one which also has the jaw deformity.

Again, it is not an uncommon thing to find deformed jaws in cases which have never had adenoids or hypertrophied tonsils. I do not wish to be understood as taking the position that these conditions are never the cause of deformities of the jaw and teeth, but, inasmuch as the deformities mentioned are found both where they are present and where they are absent, it would seem fair to contend that these are far from being the sole cause. I would further suggest that in order to produce marked deformity of the jaw and teeth the adenoids or tonsils, or both, need to be so greatly enlarged as to produce almost entire mouth-breathing, and even then the condition would need to be present some years to produce such deformity.

It is certain that an important part played in this peculiar bone deformity is the general lack of osseous nutrition. This may be serious enough to come under the general term rachitis, or it may be just on the border line. The presence of marked adenoid development may so interfere with the general health and nutrition of the body as to introduce an element of weakness into structure and growth of the bone. This state of affairs plus abnormal breathing would tend strongly to deformity. It would seem that heredity is no mean factor in the causation of high-arched palate and crooked teeth. One may inherit a Roman or a flat nose, high cheek-bones or a round facial contour. Why not a V-shaped hard palate?

*Removal of Adenoids.*—If the faucial tonsils are large enough to interfere with respiration or deglutition, or if they are the seat of frequent inflammatory attacks, they should be cut out. In childhood the operation is almost entirely free from danger. It is not necessary to administer an anesthetic for a tonsillotomy. . . . If adenoid or lymphoid tissue be present in the vault of the pharynx in either small or large quantities, it should be removed with the least possible delay. . . . An anesthetic should be administered unless there exists some good reason not to do so. . . .

Skillfully performed, there is but little danger in the operation.

It can and should be done rapidly, and the first instrument introduced should be of such a nature that nearly the whole mass may be taken at one bite. For this strong, heavy forceps are the best. This should be followed by the curet, and finally the finger may be introduced for the double purpose of ascertaining if all is removed and of tearing out any odds and ends remaining. All of this need not consume more than about one minute of time, but thorough removal is of the utmost importance. . . . The after-treatment is simple. Rest in bed for from twenty-four to forty-eight hours. The patient should remain where he is for the above time.

Parents are gradually becoming educated to detect the symptoms of these growths, but wide-awake dentists have an unusual opportunity to detect the symptoms, and with it comes a duty to add to their already useful avocation that of aiding parents to see the importance of subjecting their afflicted children to operative interference, and free them from these conditions with their long train of attendant symptoms and serious results.—*Cosmos, Aug. 1899.*

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#### FATHER NOT OBLIGED TO PAY FOR TREATMENT.—

Edelman vs. McDonnell is the title of an action that was brought to recover payment of a bill for medical services. Father and son were defendants. The services consisted of divers consultations, house visits, office visits, surgical operations and surgical dressings extending over a period of six months. They were rendered in pursuance to the request of the son—who was not a minor—while the first consultation was in progress. But the plaintiff alleged that at divers times thereafter during the treatment the father made statements to him which led him to believe, and from which he did believe, that the father would pay for the treatment, and that he relied on such statements, and gave credit to the father as well as to the son. However, the statements and promises of the father were not in writing, and while the court rendered judgment against the son, it also rendered judgment against the plaintiff and in favor of the father. From this latter the plaintiff appealed. But the supreme court of California affirms the judgment of the lower court. First of all, the supreme court says that it was not shown that such statements were made as would justify the belief that the father would pay for the treatment, or that he intended that they should

be so understood, or that the services would not have been rendered had such statements not been made. Perhaps, the court suggests, the statements consisted in expressions of interest in the case, or were express oral guarantees of his son's solvency. Then, it says, it was not found what services were rendered after the promises to pay were made at divers times during the treatment. The first contract of employment having been made with the son, these promises were only to pay his debt. Again, the court points out that it did not appear that the son was living with his father or was being supported by him. For aught that appeared they may have been living apart for years, and the son may have had his own family and business. Had the father been taking care of him, and actually supporting him as though he were still a member of his family, as minor children generally are of their parents' family, the court adds, the presumptions might have been very different. It also remarks that it understands that a contract which a physician makes with his patient whose case he undertakes is usually one contract for the entire work. This, however, it pronounces immaterial in this case, because, if the alleged promises were sufficient to make the father responsible for the visits after such promises, still it did not appear what services were rendered.—*Jour. A. M. A., Dec. 1899.*

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RELATIONSHIP BETWEEN INSANITY AND THE USE OF ANESTHETICS. By Dr. G. H. Savage, London. He pointed out that any drug which produced temporary mental disturbance might produce disorder of a more lasting nature. Anesthetics producing delirium might give rise to mania or, producing insensibility, might cause stupor and mental confusion. Anesthetics rarely produced insanity except in patients who had had previous attacks, or who were predisposed by exhaustion or allied states. Anesthetics alone might produce insanity, or the production might depend upon the operation and the anesthetic. In some cases insanity had followed the administration of an anesthetic and the application of some dressing, such as iodoform. Dr. Savage did not think that one anesthetic was more likely to cause mental disorder than another, as he had seen mania following the administration of gas for slight dental operations. In a certain number of cases he had seen insanity following the administration of anesthetics during childhood. He had scarcely ever seen simple melancholia or delusional

insanity following the use of anesthetics, but stupor lasting for some weeks had occurred in several cases, and he was inclined to think that greater risk of such disturbance followed the use of anesthetics in operations about the bladder and rectum than in other operations. The administration of anesthetics to patients who were subject to recurring attacks of insanity was associated with considerable danger, and examples were given to prove this. Dr. Savage also gave some examples of the redevelopment of mental symptoms which were passing off when an anesthetic was given to a convalescing patient. In his experience little or no danger resulted from the administration of anesthetics to those who were already insane, and he maintained that it was rather a question for the surgeon than for any one else as to whether an operation should be performed on an insane patient. Naturally in maniacal cases it would be risky to perform any operation. So far as the treatment of insanity by the administration of anesthetics was concerned, he could say only that it had failed in all cases. Maniacal patients, though quiet at the time, returned to their maniacal excitement so soon as the anesthetic was removed, and sleep produced by anesthetics was temporary and of little service. In a few cases of extreme weakness following maniacal excitement it was of value. Therefore he could say only that anesthetics, though they might cause insanity, might relieve for a short time if given to the insane; that there was great danger to patients who had had previous attacks or who were very unstable; but that the administration of anesthetics to the insane might be looked upon as harmless.

Discussion. *Mr. W. Tyrrell* related the case of a little girl who, after coming round from the effects of chloroform, and being reasonable for an appreciable time, gradually fell into a state of stupor in which she remained for three days. Then she suddenly awoke as if from a dream, and had remained quite herself since.

*Mr. H. C. Crouch* related a case in which, after the administration of gas and ether for a dental operation, the patient became violently delirious and gradually passed into a state of dementia, from which he never recovered, but eventually died in an asylum. All the children of this man developed neurotic taints.

*Dr. J. F. W. Silk* thought there was some association between the delirium after ether anesthesia and the absence of vomiting. He had seen several cases of mania following excision of the rectum.

*Dr. Savage* pointed out that when the intellectual level of the patient had been reduced by an anesthetic any delusion which might be developed was apt to persist as a kind of mental scar. He thought that cases of temporary delirium might be looked upon as connecting links in the following series: loss of consciousness, loss of higher control, delirious conceptions, and mania. Melancholic exhibitions were unusual after anesthesia, except, in those who had previously suffered from melancholia.—*Dental Record*, Dec. 1899.

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**PEMPHIGUS CHRONICUS VULGARIS OF THE LARYNX AND MOUTH.** By J. H. Bryan, M.D., Washington, D. C. The following brief sketch of a case of pemphigus chronicus vulgaris affecting only the mucous membrane of the larynx and mouth is of interest on account of the rarity of this affection.

In this country, at least, it must be extremely uncommon, for I am familiar with only one or two reports of cases, but the foreign literature is much more replete, especially that of the Germans.

Mrs. ——— consulted me in October, 1898, complaining of certain indefinite sensations in the region of the larynx, and stated that for six months or more she had had trouble with the throat. The attacks were frequent but not of long duration, the principal sensation being that of a foreign substance in the larynx.

She had always enjoyed good health, save for occasional attacks of muscular rheumatism, which have not been severe enough to occasion her much inconvenience. Her appearance gave the impression of a well-nourished person, although a little paler than usual.

The examination showed the nose, nasopharynx and pharynx in good condition; but with the mirror a small white membranous deposit, about a quarter of an inch in diameter, was observed on the laryngeal surface of the right half of the epiglottis.

While in the act of making a local application with a cotton-tipped applicator, this deposit was detached and brought away on the cotton. The membrane beneath was red, but it did not show any loss of substance, such as is met with in the various forms of ulceration that affect mucous surfaces. I sent this piece of membrane, which was of considerable thickness, to Dr. Jonathan Wright, requesting him to make an examination of it for me, at the same time venturing the opinion that we had in all probability a case of simple membranous laryngitis to deal with. I tried also to reassure the patient



her affliction would soon be a thing of the past. In less than four days she returned to the office saying the trouble had returned, and she felt it on the left side of the throat, referring to the larynx. On examination a deposit of membrane of the same character and about the same size was observed on the left half of the laryngeal surface of the epiglottis—the seat of the former deposit looked perfectly normal.

About this time I received a statement from Dr. Wright, giving it as his opinion the case was one of chronic pemphigus vulgaris, and also giving me the results of his microscopical and bacteriological examinations, which were as follows: Under the microscope the membrane showed a fibrinous deposit containing numerous round cells, but no epithelium; staining with Gram's method showed a large number of cocci, but no bacilli.

Up to this time I was not familiar with this condition, never having seen a case before. There have been frequent outbreaks since the original observation, the membranous deposit making its appearance on one-half of the epiglottis, disappearing in a few days to reappear on the other half of this cartilage.

The patient denies ever having any cutaneous disease. About three weeks ago she complained of feeling much worse, especially of being very nervous and weak. The examination revealed a small deposit on the epiglottis, and for the first time the gums were noticed to be quite red and swollen. There was a membranous deposit on the upper left half of the gum about an inch in length, and a smaller deposit on the lower gum just below the incisor teeth. She was a little more anemic looking, and complained of a slight swelling of the lower extremities.

An examination of the heart showed nothing abnormal, except that the sounds were not quite so clear as they should be in a vigorous person. A urinary analysis showed a slight trace of albumin with a few blood-corpuscles and pus cells, and a few granular hyaline casts. An examination of the blood showed nothing abnormal.

Pemphigus is a varied form of skin affection characterized by the formation of bullæ, and whether it be of the benign or malignant variety dermatologists consider it a very rare disease. The eruption on the mucous membrane of the upper air-passages is noticed in all forms of the disease, being more common in the chronic than in the acute variety. It is generally secondary to the skin eruption, grad-

usually extending into the mouth, pharynx, larynx, and into the trachea and bronchi, and also occasionally affecting the conjunctiva. There are, however, a number of instances in which the eruption makes its appearance on the mucous surfaces primarily, as in my case. Generally the appearance of the eruption on the mucous membrane is characterized by the formation of a bleb, which is filled with a yellowish fluid such as we find in the bullous formations on the skin. The bleb finally ruptures and a milky white membranous deposit remains. It is questionable whether the appearance of the eruption on the membrane is always accompanied by the formation of bullæ. In my case I have never been able to recognize them, although the patient is able to determine the time of the appearance of the eruption on the membrane by a prickling sensation in the larynx, and she has been in my office within half an hour of this time.

According to Chiari, the bullæ are the result of a rapid exudation, while in a slow exudation it simply causes a raising and discoloration of the epithelium, giving the grayish deposit the appearance of a diphtheritic membrane. Acute pemphigus of the mucous membrane is always accompanied by a high fever, while the chronic variety is generally without fever and occurs in those who feel otherwise well.

The diagnosis of pemphigus of the larynx, when it is secondary to the skin eruption, offers little or no difficulty, but it is quite another matter when it makes its appearance primarily on the mucous membrane. It is to be distinguished from diphtheria, tuberculosis, syphilis, herpes of the larynx, and finally the caustic effects of acids or lye.

The etiology of pemphigus is extremely obscure, the majority of authors holding to the tropho-neurotic theory. Microscopic and bacteriological examinations have been made in Mandelstamm's, in Miller's, and in my case, all of which were of a negative character.

This is essentially a chronic disease and may last months before disappearing or wearing the patient out. Local applications have no influence whatsoever, alkaline washes probably giving the patient some relief from the constant irritation in the mouth and larynx.

The only remedy which is supposed to have the slightest influence on the disease is arsenic, either in the form of the Asiatic pill or Fowler's solution carried to the point of tolerance. This latter

remedy has acted well in my case. Patient has not had an outbreak in larynx or mouth for two months.—*N. Y. Med. Jour.*, Nov. 1899.

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**SALIVARY FISTULA.** By Dr. G. Frank Lydston, Chicago. The first case I wish to report is one of salivary fistula, cited for the purpose of outlining rather a novel procedure for the operative cure of the fistula. The patient was a man 25 years of age, who had been under treatment for syphilis, and was referred to me for what was believed to be a gumma in the region of the parotid gland. On examination the tumor proved to be a salivary cyst. I proceeded to extirpate it, and on the second day after operation I discovered, much to my disgust, that the cyst communicated, in all probability, with Steno's duct. I had substituted a salivary fistula for the tumor. Some three months later the patient, having stopped treatment for two or three weeks after the operation, returned to me. Cauterization and repeated suturing had been done by a surgeon who had endeavored to heal the fistula. I suggested a novel operation, which consisted of an attempt to reestablish the continuity between the bottom of the fistula and the normal opening of Steno's duct. After freshening the edges of the fistula, I passed a large, pointed, straight probe, armed with strong silk obliquely through the cheek and made it emerge from the normal opening of Steno's duct inside the cheek. I fastened a small soft catheter to the ligature and drew it through the mouth. On the end of the catheter I fastened a single strand of silver wire which was drawn through the distal extremity of the catheter in such a manner as not to occlude its opening, thus leaving its lumen free. I countersunk the catheter to the depth of half an inch in the tissues of the cheek, and fastened the wire to a small lead plate, after stitching the fistula with catgut sutures. Beneath the plate was applied a dressing of iodoform gauze. The free end of the catheter was made to emerge from the mouth. From that time on saliva flowed freely from the mouth. At the end of ten days the wire was cut and the catheter removed. The fistula was found to be absolutely healed. No further trouble from the fistula was experienced. Whether the probe had traversed Steno's duct, I cannot say, but more likely I made a new fistula through the cheek, emerging in the mouth, and simply causing the fistula to open as nearly as possible at the normal opening of Steno's duct.—*Jour. A. M. A.*, Jan. 1900.

**RESECTION OF SECOND BRANCH OF TRIGEMINUS.**

Dr. Alexander Frankel, Vienna. (*Centralblatt für Chir.*, 1899.) In some cases in which resection of the second branch of the trigeminus at the foramen rotundum is indicated, Lucke's procedure, as modified by Braun, is probably most frequently employed. The author used the method described below in a case which eighteen months before had undergone a neurectomy at the site of the infra-orbital foramen. His attention was first called to the procedure by Dr. Julius Tandler, prosector under Prof. Zuckerhandl. The operation was carried out upon the cadaver, then upon the case mentioned. The result was very satisfactory, and the author recommends the procedure in that it accomplishes its purpose without leaving a visible scar.

The steps in the procedure are as follows: (1) Separation and paring down of the mucous membrane of the upper jaw over the fossa of the cuspid. This is carried on in a lateral direction until the zygomatico-alveolar crest is reached, the upper lip being strongly retracted. (2) An opening is made into the antrum of Highmore by turning up a flap. (3) Inspection of the antrum with the aid of artificial light, the nerve being diaphanous at the lateral portion of the posterior wall. At the nerve site the mucous membrane is incised and lifted out of the way with a slender periosteal elevator. (4) An opening is made by chisel or trephine in the upper and posterior angle. This brings the nerve into the field of operation. It is caught with a small blunt hook and its course followed to the inferior orbital fissure in one direction, and to very near the foramen rotundum in the other direction. It is put upon the stretch and resected. Finally, the flap on the anterior wall of the antrum is closed, leaving room for a small strip of iodoform gauze to serve as a drain for the antrum, and the oral mucous membrane is partially closed. Hemorrhage is practically nil, slight compression sufficing to control it. The procedure is chiefly to be recommended because it avoids scarring; there is no vessel to be injured such as the internal maxillary; it is as rapid as it is reliable. There is some disadvantage in the relative difficulty experienced in lighting the deepest portions of the antrum, but this is readily overcome by means of the electric headlight. The orbit may be opened accidentally in attacking the posterior wall of the antrum.

Carnochan, an American surgeon, used a similar method some

thirty years ago. He, however, made a skin incision and followed the nerve back from the infraorbital foramen. This procedure was followed by such septic complication, as this was in preaseptic days, that the procedure was abandoned. At present there should be no objection to the method. The author's case suffered a slight catarrh of the antrum as the only complication of the operation.

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PROPHYLACTIC INOCULATIONS. By Edward F. Wilmoughby, M.D., London. The progress of bacteriology during the last few years has been so rapid that it is almost impossible for any but those who are actually engaged in the work of the laboratory to keep abreast of the advance of the science. Working hypotheses either become established facts or are set aside by the very discoveries they have led up to, almost before their true character has been generally apprehended. One result of this advance all along the line is that the public as represented by the lay press, and probably the majority of the medical profession, when the latest discoveries find a practical application in the prevention or treatment of disease, are apt to interpret them in the light of the state of the science and the knowledge of several years past, and to ascribe to particular procedures the characters and effects of others more familiar to them, but with which they have little or nothing in common. They are fully aware of the permanent or long duration of the protection against small-pox conferred by vaccination, and probably conclude that inoculations against cholera or diphtheria must be equally lasting; or finding that the immunity is only temporary and transcient, are inclined to doubt its reality altogether. They do not clearly distinguish between immunization by the induction of the actual disease in an attenuated or modified form, and that imparted by the injection of products of the bacilli, which, so far from producing the phenomena of the disease in a milder phase, have a directly opposite and antagonistic action; and fewer still have any conception of the difference between antibiotic and antitoxic agents, the one class causing the death of the bacilli, and the other neutralizing or destroying the poison independently of any action they may or may not exert on the bacilli themselves. There is, in fact, nothing improbable in the statement that the bacilli of diphtheria have been cultivated in the (solution of) antitoxin. though to such men it would appear to prove the whole doctrine of serotherapy a delusion;

and the fact, well known to experts, that quantities of (washed) cultures of tetanus bacilli may be introduced into a (healthy) wound, but that the addition of a little lactic acid or of a culture of bacillus prodigiosus will induce tetanic phenomena, would seem to prove that these were due to the accessories rather than to the reputed specific microbe; and lastly, the indisputable fact that many persons in seeming health carry the bacillus of diphtheria in their mouths for weeks together without any infection or ill-effects to themselves is in itself calculated to provoke incredulity as to the existence of an essential and strictly causal relation, and to suggest a merely casual connection or association between the bacillus and the disease.

The products of bacteria by which the phenomena of infection and of immunity are induced belong to two distinct classes, ptomaines and toxines; the former being alkaloids, of complex but definite composition like those obtained from the vegetable world, capable of being isolated in a state of purity, and secondly of albumoses, akin to those produced in the process of peptic and tryptic digestion, of the chemical constitution of which little is known, from the impossibility of isolating them from the inert albuminoids in and with which they are held in solution, and from their tendency to the total or partial loss of their properties in the act of drying. An interesting fact may be here mentioned in passing—viz., that the venom of serpents, which is an albumen or an albumose, though a secretion of the parotid gland and not a product of bacteria, is susceptible on the one hand of being digested by the action of ptyalin, papain, pancreatin and pepsin, so as to be rendered inert when swallowed, and on the other is capable of acting as a peptonizing agent on other albuminoids, etc.

Ptomaines and toxines are alike poisonous, and alike vary greatly in their virulence; but ptomaines are exclusively products of the bacteria of putrefaction, under circumstances involving the exclusion or a very scanty supply of oxygen. The virulence of some almost passes belief, while others are scarcely poisonous in the ordinary meaning of the word. The toxines are for the most part less virulent than the ptomaines, that of tetanus being the most, and those of diphtheria and probably the plague coming next in their virulence. The power possessed by many bacteria of dissolving and digesting animal matter plays probably an important part in their action on the living body. Of one hundred and forty kinds observed



by Claudio Fermi, forty liquefied gelatin and five dissolved fibrin, while a large number, though cultivated in serum, gelatin and broths, in the entire absence of starch or sugar, yielded diastatic ferments; those of anthrax, cholera, and Finkler's and Prior's being among the number. But while neither class of ferments is formed by bacteria grown in nutrient *salts* only, the presence of starch is *most favorable* to the formation of diastatic ferments, and of gelatin to that of the peptonizing, the conditions of temperature, reaction, etc., being within the limits requisite for each particular case.

Some of the poisons produced by bacteria act simply as do the vegetable alkaloids, especially muscarine, as the gland poison of snakes, or induce indefinite symptoms of gastro-intestinal irritation. Others are pyogenic, exciting local inflammation, with the formation of pus. Among these the general tendency of streptococcal inflammation is to a wide diffusion of the suppuration, while that of the staphylococcal is to circumscribed abscesses, the process being limited by the fibrinous exudation peculiar to their action. In like manner the density of the so-called false membrane in diphtheria will "vary from the consistence of cream to that of wash leather," just as streptococci or staphylococci predominates, Loeffler's bacillus, which alone induces the remote effects, the degeneration of the medullary axes of nerve-fibres, and of the muscular tissue of the heart, taking little or no part in the exudation.

A distinction has been made between toxic and septic poisons, the former being those produced locally by the bacteria, and absorbed and diffused thence by the lymphatics; the latter being formed everywhere by the bacteria, which multiplying in the blood pervade the entire circulation and penetrate the tissues, instead of remaining confined to certain glands or organs, as the spleen. The distinction, however, is somewhat artificial, some bacteria producing one or other poison under different conditions, or even apparently both under the same.

Immunity is the power possessed or acquired by the organism of producing or causing to be produced substances having (1) the property of causing the death or of inhibiting the growth of the special pathogenic bacteria, or (2) of destroying or of neutralizing the action of the toxins; and immunity of either kind may be (1) natural or congenital to the race or the individual, or (2) may be acquired by the animal having passed through an attack of the disease

or having been subjected to certain processes of inoculation with prophylactic preparations; and the immunity of either kind and whensoever derived may be but transient and temporary or so far permanent as to be practically of lifelong duration.

Natural immunity is possessed by certain animals towards certain diseases, sometimes in virtue of the high or low temperature of their blood. [The immunity of birds to anthrax can be overcome by lowering their temperature, and in fish the bacillus of tubercle induces a rapidly fatal disease, but loses its virulence towards warm-blooded animals.] In others it is as inexplicable as their tolerance of morphin, atropin, etc., the resistance being manifested in some towards the growth of the bacilli, the tolerance in others in respect of the toxins.

Acquired immunity, temporary or permanent, follows an attack of certain diseases, small pox, scarlatina, measles, typhus and yellow fever conferring a lifelong exemption, and diphtheria one of little more than a month's duration. But it may be imparted artificially by inducing a modified form of the disease, as in vaccination, the vaccine virus being not that of a disease peculiar to the cow, but simply variolous virus so altered by cultivation in the organism of a bovine or equine animal to which it is foreign as to have lost most of its virulence, and becomes communicable by actual inoculation only, enthetic instead of contagious; or by the attenuation of the virus by cultivation under unfavorable conditions, as in the living bodies of other animals, or in culture fluids, or at temperatures partially inhibiting the normal development and vital functions of the bacteria. Such are the Pasteurian inoculations against anthrax, rabies, rouget, etc. But from the impossibility of accurately standardizing the cultures, and the differing susceptibilities of individual animals, there is always the risk of either failing to obtain the requisite degree of resistance, or of giving a dose that shall prove fatal; so that, however useful with brutes, whose lives have only a pecuniary value, the risks attending these inoculations preclude their employment in the case of man. Immunity may also be conferred by injections of the toxins, but it is not so lasting as that following injections of living bacteria and requires a certain time for its acquisition. It is easier to render an animal immune to fatal doses of living bacteria than to those of toxins, and the former immunity does not involve the latter, though latter does the former.

There is one more way in which immunity may be imparted—viz., the injection of the serum of animals highly immunized by other means. Of this the antitoxin treatment of diphtheria is the type, that of tetanus and the Italian method of treating the plague being the same in principle, though they have not as yet attained equal certainty and accuracy. This procedure, consisting in the injection not of the toxin, but of the antitoxin, not of the disease in even the most attenuated form, but of its very opposite, possesses advantages over every other, and being conceivably available in respect of every specific disease that of itself tends to a spontaneous termination within a definite period, and of all those that confer immunity of longer or shorter duration, holds out prospects as to the prevention of infection and the arrest or cure of disease, the importance of which it is scarcely possible as yet to estimate.

The resistance of an animal to infection is a complex effort involving phagocytosis, or the action of the leucocytes on the bacteria, towards which they are attracted by the phenomenon of chemiotaxis, and which they take into their substance and devour as an amoeba does the particles on which it feeds; a process which takes place in every exposure to infection, the struggle ending in favor of the leucocytes, or of the bacteria. It is thus that a man, who after having long resisted exposure to infection, as in a fever hospital, at length succumbs, when by fatigue, hunger, or any depressing circumstance the vitality and energy of his protoplasm has been lowered. The serum in its normal state is possessed of a certain bactericidal property, in virtue, probably, of some substances formed by the leucocytes, called alexins, though their existence is at present only hypothetical.

But the paramount means by which the disease is brought to a termination is the production of an antitoxin, the property of which is to act as an antidote neutralizing the toxin secreted by the bacilli, which are meanwhile destroyed by phagocytosis, or gradually succumb to the bactericidal power of the serum. The protoplasm of an animal that has gone through a natural attack of a disease contains such antitoxin, but in quantities too small for practical purposes, for which such a high degree of immunity as can be obtained only by long-continued artificial immunization is necessary. The horse, though not insusceptible to the poison of diphtheria, possesses the power of producing the antitoxin in so extraordinary

a degree that it is almost impossible to induce the fully developed disease in him, except by using enormous quantities of the toxin. The procedure originated by Behring consists in the injection of a certain quantity of a highly virulent culture of the diphtheria bacillus that has been carried on for a month at the temperature of the blood. This gives rise to a febrile disturbance of short duration, and so soon as it has subsided the injection is repeated, with little, if any, visible result. Gradually increasing doses are injected at short intervals till, at the end of three months, doses several hundred times as great as those first used can be injected with absolutely no effect on the health or well-being of the animal, whose blood is then so charged with antitoxin that very small quantities of its serum are required to confer immunity on or to arrest the progress of the disease in any other animal susceptible to it. Henceforth occasional injections suffice to maintain the condition of the horse's blood, and a litre or more may be drawn off every week. The serum, separated by the coagulation of the fibrin and red blood-corpuscles, carefully filtered and bottled with antiseptic precautions, constitutes the antitoxin so called, or, more correctly, is a solution of the antitoxin, the isolation of which in the dried state has not yet been very successful. The "antitoxin" is standardized by determining the quantity capable of exactly neutralizing the minimum lethal dose of toxin required by a guinea-pig of average size.

If administered in *sufficient quantity* to a patient within the first twenty-four hours from the commencement of the illness, the mortality may be reduced to one per cent, and if within three days to five per cent. At later stages its effect becomes less and less marked; indeed, after the seventh day it has little influence, for though it may avert further destruction of the nerve substance and the fibres of the cardiac muscles, it is obvious that it cannot undo the degenerative processes that have already taken place.

It may also be used for prophylaxis, one good injection rendering the individual insusceptible of infection for a period of, but not exceeding, one month. This use of antitoxin has not been taken advantage of as extensively as it should be. On the appearance of a case of diphtheria in a family or school it should be employed not only on the actual patient in whom the disease may perhaps have already proceeded too far for much effect, but on every other child in the establishment and adults in attendance on the patient. They

will thus be protected for a period long enough to cover the whole course of the original case, and the disinfection of the room and all possible vehicles of contagion.

Much has been written of late about antistreptococcal serums, but their efficacy is far from proven, and there is no satisfactory evidence that they are in any way comparable, the virus of septicemia, etc., belonging to the class of septic rather than of toxic substances.

It is generally held that the antitoxins are secreted by the protoplasm of the cells, and not by the bacteria; but since it is not easy to believe that these cells have the power of producing a separate antitoxin for every possible toxin, it seems a more reasonable hypothesis to ascribe to them the property of acting on the toxin itself in such a manner as to obtain from it or to convert it into an antitoxin; and experiments *in vitro* on certain toxins appear to give support to this view of the mutual relations of the cells, the toxins and the antitoxins.—*The Therapist*.

DID MAN ONCE POSSESS A THIRD EYE?—Deep researches as to the structure of the human body have recently furnished some startling facts regarding changes which man is at present undergoing physically.

It is believed that man was formerly endowed with more teeth than he possesses now. Abundant evidence exists that, ages and ages ago, human teeth were used as weapons of defense. Unintentionally, traces of such use are often revealed by a sneer. The teeth are sometimes bared, doglike, ready, as it were, for action.

The practice of eating our food cooked and the disuse of teeth as weapons are said to be responsible for the degeneration that is going on. The wisdom teeth, in fact, are disappearing. Human jaws, found in reputed Palæolithic deposits, have wisdom teeth with crowns as large as, if not larger than, the remaining molars.

In ancient times a short-sighted soldier or hunter was almost an impossibility; to-day a whole nation is afflicted with defective vision. It is almost certain that man once possessed a third eye, by means of which he was enabled to see above his head. The human eyes formerly regarded the world from the two sides of the head. They are even now gradually shifting to a more forward position.

In the dim past the ear flap was of great service in ascertaining the direction of sounds, and operated largely in the play of the features. But the muscles of the ear have fallen into disuse, for the fear of surprise by enemies no longer exists.

Again, our sense of smell is markedly inferior to that of savages. That it is still decreasing is evidenced by observations of the olfactory organs. But the nose still indicates a tendency to become more prominent.—*Evening Telegram*.

## Letters.

### NEW YEAR'S REFLECTIONS.

#### *To the Dental Digest:*

It was the eve of 1900. The busy dentist sat conning the stack of bills his assistant had made out to send as New Year's greetings to his faithful patients. One by one he picked them up and allowed his memory to go back to the happy hours he had whiled away at the side of the iron chair, giving with what skill he might the equivalent for "the amount due to date." Many of these bills he had sent before at 2 cents per.

Here is a small account of \$8.50 for work done last spring—would it go until the robins nest again? Yes, until the 20th century. Still, he may at least hope. Here is one that recalls the happy hour when he bought the gold for the crowns, with the sure feeling that the fee of seventy-five simoleons would be his when the cement was dry. Alas, six months have set their tarnish on these crowns and—well, here is a happy one. The landlord had called that day and told how bad his books looked. The busy dentist had informed him of the big job under way for the wife of a brewer for which the check would be surely sent on the first of the month; but after the work was started said wife of the brewer took a quick start for Europe, leaving this small bill until her return.

So through the list the pleasant memories came with each. The snow was falling, and as the b. d. took the big bunch of snow white envelopes and dropped them into the red box on the corner, he fancied the joy they would cause as they dropped into the hearts of his appreciative patients like snowflakes on a bronze statue, and in solemn earnest undertone he prayed they might not melt like snowflakes in those warm hearts, but endure like the beautiful pebbles in the gizzard of a turkey gobler. Selah. LESWIK.

### BUFFALO LETTER.

#### *Dear Digest:*

BUFFALO, Jan. 22, 1900.

In our October letter we spoke of the nervous shuffle of feet in Western New York caused by the revival of the International Tooth Crown Co. patents. A few days since the local dentists were called



upon by a very slick young man, who in soothing tones inquired, "Do you wish to make settlement now with the company for infringement upon its patents?" It is no longer a case of nervousness, but a positive stampede, and it resulted in a mass meeting on Jan. 16, called by the unprotected, hoping thereby to discover means of running under cover. The Protective Association published its ultimatum in the *DIGEST* of October, wherein it was clearly stated that all in prior to Dec. 1, 1899, would receive the Association's protection. All others must make their own defense, should action be brought against them by the Crown Company. In the same issue Pa Nam mused thus: "We wonder what proportion will pinch the price of protection," etc. It would not be an undeserved lesson, one taught in the severest of schools, Experience, for the Association to decline the 13th hour flood, money and all, and let them enjoy the fruits of their own conceit.

The genial Dr. R. Kessel, after an eight months' visit with his parents in Berlin, where every one shouts "Hoch der Kaiser" (which means to — with him), has resumed practice in this city.

On Saturday evening the staid old District Society, under the safe pilotage of its popular business committee, blew itself for a social dinner at the Genesee Hotel. The charge to each was one-fifty (and cheap at that). The speeches—not one prepared—(except with about fourteen yards of typewritten matter) were limited to five minutes. However, it was an enjoyable occasion, and the custom should be enduring, for only through these social round-ups can that cohesive *esprit du corps* be fostered which is so valuable to all professions.

These pesky State Regents, with all their demanded "counts" before admitting the zealous aspirant into the sacred channel leading up to dental lore, are a nuisance—so say the aspirants. That is, so say those who did not "hold onto the rope" or who saw no rope to hold on to; but never mind, boys, you are all sure of getting the coveted vellum, provided you do square honest work during college days. With your sheepskin in your inside pocket, just settle in Buffalo and you are immune so far as the state's demands for formality go. To convince you that this is a fact, just take time to observe how busy our local censor keeps himself. Log-rolling takes time. Deacon's meetings take time (where there is no specified limit to speeches). Studied and laborious newspaper interviews,

pregnant with advice to the government at Washington as to the care of the teeth in both army and navy, take time.

Should the foregoing not quiet your disturbed nerves, do this and then peace will be your bed-fellow—take a complete list of the men practicing dentistry in this city, deduct all those in legal practice, and then take your chance among the great majority. You are sure to win.

Yours truly,

PA NAM.

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### BRITISH DENTAL SOCIETIES AND JOURNALS.

PHILADELPHIA, Jan. 3, 1900.

*To the Editor of the Dental Digest,*

DEAR DOCTOR: Permit me to correct an error in the second paragraph of the New York Letter, page 905, December 1899, DIGEST. The society spoken of is the British Dental Association, the national association of Great Britain; not the Odontological Society, which is a local organization of London. The journal of the British Dental Association referred to is published by the Association as its official organ, and has now reached its twentieth year. While it is largely taken up with business matters connected with the Association and its numerous branches, the publication of which is its main purpose, it has not neglected the practical needs of its many subscribers in furnishing monthly such information as one expects to find in a dental journal well edited and thoroughly up to date. For a number of years the journal was published at a loss, but since 1895 it has been more than self-sustaining and is now an increasing source of revenue to the Association. With the January, 1899, number it put on a new dress, and was enlarged and improved in every way, so that judged by any standard it has a well merited place in the front rank of dental journals.

The British Dental Association, with its more than a thousand members, its numerous branches scattered throughout the land, all well organized and closely in touch with the central body, its well invested fund available for advancing professional interests, and its benevolent fund which is separate and apart from this, and which now amounts to over \$5,000 safely invested and yearly increasing, notwithstanding a long list of dependents, all this is an inspiration to our cousins across the sea which we in this favored land know not of. In England there is no necessity for a dental practitioner

incapaciated for work, or a dentist's widow or children, to appeal to the public for aid—professional brotherhood means more than mere words in that little isle. The reports of those in charge of this benevolent fund are very pleasant reading. The dental profession in Great Britain is thoroughly organized and its members are loyal. We have proofs of that in the facts that one in five of those eligible are members of the national association, in the large attendance at its annual gatherings, the success of its journal, and the keen interest taken in its benevolent fund and charity work.

English dentists believe, and live up to the belief, in a long pull, a strong pull, and a pull altogether. In America we waste our strength in tugs of war.

Yours fraternally, WM. H. TRUEMAN.

### NEW YORK LETTER.

NEW YORK, Jan. 22, 1900.

*To the Editor of The Digest,*

MR. EDITOR:—A feeling of chagrin has gone over this part of the country because of the action of a few New Jersey dentists in settling with the Crown Co. The prominence to which these men had aspired makes their action all the more humiliating. We mentioned in one of our recent letters that there was a rumor to the effect that some dentists had become stockholders in the Crown Co. We do not like such a record in the beginning of a new century, but we fully believe that the moral tone of the people is on a decline in all directions, so we must expect a contribution from dentists.

As chlorid of zinc is now recommended for mummification of pulps, it may be of interest to the younger portion of our calling to know a bit of the history of the original filling that was chemically what is known as oxychlorid of zinc. However, it was first put on the market under the name of "Os Artificial," and came much into use in the early '50s. Dentists soon discovered that its durability was not of long duration. It had, however, the quality of decidedly hardening the dentin in softer teeth, and we have so filled many teeth to better advantage than if gold or amalgam were used. This practice under good judgment is still advisable. In some cases of nearness of approach to the pulp pain was caused, and this indicated almost without exception death to the pulp. While many dead pulps have resulted from this practice, there has

been seen in all cases a complete mummification of the tissue, which left the canals odorless and safe from all future trouble. In these cases we found it wise practice to leave the pulp-chamber entirely alone. In our early treatment of the deep pockets caused by Riggs' disease we used full strength of chlorid of zinc, and it was effective but painful. In 1877 we made use of this preparation on teeth with closed pulp-chambers and dead pulps. We first drilled a small opening and then saturated the contents of canal and chamber with the remedy, and the results were gratifying. The late Dr. Garretson emphasized oxychlorid of zinc for hardening dentin.

*The Dentist*, of Dec. 23, has an interesting discussion by Sim-Wallace on the etiology of dental caries. His thought differs widely from that of others, especially concerning the influence of heredity in producing disease. He does not agree with Dr. Black that predisposition plays an important part in caries, and he further emphasizes that the change in character of food-stuffs is an important factor. We are disposed to fall back upon that much-meaning term of Garretson's—"Resistibility," and for the origin of this we must go back to the potentiality of the germ life. That it does differ cannot be disputed, hence the variety of results. While it may be true, as Wallace says, that microscopically the structure may be found correct, yet it can be and is deficient in resistibility to prevent functional disturbances.

The annual gathering of the Odontological Society was a great success, some two hundred dentists from all parts of the country being in attendance. We have never seen men in better spirits. Dr. W. W. Walker was the presiding genius of affairs, he having been elected president of the body, and this assured a lively interest in all proceedings. Dr. Head of Philadelphia was certainly a valuable contributor to the meeting with his clinic and paper on inlays. He has lost head and heart in this work. His clinic was on the cutting edge and corner of a superior central, and the result was greatly admired. Dr. Head placed stress on the need of a cement, such as has not yet been discovered, to clear up some of the difficulties that now exist. It is evident that the work is largely in the experimental stage, but it will no doubt ultimately become very useful. It is of such a character, however, that the masses cannot and will not contribute to its success, and only an artist can produce satisfactory results.

We learn that many dentists are studying French. Some of the Paris garçons will smile when taking orders this summer.

It was advocated by side talk at the recent gathering that June would be a more favorable time for the National Association at Old Point Comfort, but New Yorkers object, as it is the busiest month in the whole year with them. Cordially, NEW YORK.

TO THREAD A NEEDLE.—Hold it with the ring and little fingers of the left hand, instead of with the thumb and forefinger, as is the usual way. This method, according to Dr. J. M. Jackson, leaves the thumb and forefinger free to grasp the smallest bit of silk or other suture material as it passes through the eye and pull it to a safe distance on the other side.—*Factotum*.

VARIATIONS IN WEIGHT.—The following table by W. W. Wagstaff in *Knowledge* is interesting:

Average.	lb oz.	lb. oz.
9 A. M.—Before breakfast	155 8 (losing 3 6)	during night.
10 A. M.—After "	157 4 (gaining 1 12)	
12 noon.—Before lunch	156 6 (losing 0 14)	
1 P. M.—After "	157 6 (gaining 1 0)	
5 P. M.—Before dinner	156 12 (losing 0 10)	
6¼ P. M.—After "	158 14 (gaining 2 2)	

By these figures it will be seen that an average person weighing 155 pounds loses 3 pounds 6 ounces during the night and that he gains 1 pound 12 ounces by breakfast, and then that he loses about 14 ounces before lunch, that lunch adds an average of 1 pound and then he again loses during the afternoon an average of 10 ounces; an ordinary dinner to healthy persons adds 2 pounds 2 ounces to their weight. Of course excess in eating and drinking will change these figures, but they are interesting as averages.

NOSE BLEEDING AS AN EARLY SIGN OF SOFTENING OF THE BRAIN.—Dr. Carl Kompe, in *Fraenkel's Archives*, points out that spontaneous nose-bleed in individuals above forty years of age, which cannot be traced to one of the well recognized local causes, is a suspicious sign of general arterio-sclerosis, and calls for a consideration of all symptoms of sclerosis of the vessels of the brain. If the ophthalmoscope confirms this, a fairly positive diagnosis of sclerosis of the brain vessels may be made; and from it of incipient softening of the brain. The same condition of the vessels of both the parts (the nose and the brain) is likely to exist, since they are branches of the same main artery. Before the first indications of sclerosis of the cerebral vessels appear, sometimes pre-monitory symptoms are observed, which give warning of the early approach of softening, due to arterio-sclerosis. All the early signs of arterio-sclerosis at the heart and periphery must be considered, as cardiac hypertrophy, aortic changes, tense radial artery, tortuous temporal arteries, etc. Vierordt had good results in these cases with the iodids combined with hygienic treatment.

# The Dental Digest.

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

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## Editorial.

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### HELP THE ILLINOIS STATE BOARD.

Since our last issue the secretary of the Illinois State Board of Dental Examiners has called upon us personally and stated that during three years' time, for which period he has held his present position, he has been unable to get the state to publish his reports. He further says that said reports are now in the hands of the state printer, and that we may look for them to appear at any time. He offered no refutation of our other charges, but we will let them drop for the present, as the most serious evil is rampant. The fact that the Illinois State Board is not conscientiously prosecuting illegal practitioners of dentistry is a disgrace to the fair name of Illinois.

One honorable member of the board, who has the welfare of that organization and of his state and profession at heart, has enlisted the aid of this journal in the work of prosecution, which he will carry on individually if necessary. He wishes us to ask every dentist in the state of Illinois, if such practitioner has knowledge of the illegal practice of dentistry in this state, to send in the names and evidence to us. If so desired, the sender's name will be kept strictly confidential. We can guarantee to the profession in the state that the offenders will be punished to the full limit of the law. There has been much just criticism of the board, but every man now has a chance to help on with the work.

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### THE DENTAL PROTECTIVE ASSOCIATION.

It is now six months since the International Tooth Crown Co. won its case by questionable measures and succeeded in getting a decision in favor of the Low bridge patent. Since that time considerable of importance has transpired. Threatening letters were sent out to the profession in certain parts of the east, but no drastic course was taken until the Crown Co. put receivers into the offices.



of nine Boston dentists who were members of the Protective Association. We promptly took charge of the cases, and not only had the bonds released and the keepers removed from the offices, but it will please the membership to know that the Crown Co. were forced to pay the costs of the proceedings and were themselves put under heavy bonds for damages for illegal action.

Suits have been and are now being brought against members in eastern states, and in a very few cases settlement has been accomplished. So far as we can judge, the Crown Co. have brought such action merely for the purpose of intimidation, hoping thereby to force settlement, first with the members for small sums, and afterward with non-members for as large amounts as possible. Threats have been made in the newspapers for a similar purpose, but we are glad to state that in almost all instances the members have refused to settle and have properly referred the matter to the Protective Association, which organization is taking entire charge of the cases where suit has been brought.

The question as to whether the membership books will be again opened to non-members for defense on the Low bridge patent is under consideration, but regardless of this there is a grave misapprehension about one phase of the matter. There seems to be a widespread belief that the doors of the Association are closed to future applicants for all time. Nothing could be further from our plans. *The doors were closed only for defense against suits on the present bridge patents*, and this action has no bearing on the Association taking in new members and guaranteeing to protect them against the abuse of other illegal patent companies. To show the need of such an organization as the Protective Association, we would cite merely one example. Since the Crown Co. won its suit and again began doing business, a company which claims a patent on attaching clasps to plates, and which ceased operations several years ago rather than fight the Protective Association, has again started up, and its agents are traveling through the middle west collecting royalties. We know that other companies of the same stamp are ready to do business if possible. No body of men needs organizing so much as the dental profession, and surely a better plan than that offered by the Protective Association has never been formulated. Let no one be deceived by the Trust—the non-members are in grave peril at the present time.

## ARMY DENTISTS.

The following is the text of a bill introduced in the House of Representatives by Mr. Otey, Dec. 5, 1899, which was referred to the committee of military affairs and ordered to be printed:

A bill to provide for the appointment of dental surgeons for service in the United States army.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the surgeon-general of the army, with the approval of the secretary of war, be, and he is hereby, authorized to employ and appoint dental surgeons to serve the officers and enlisted men of the regular and volunteer army in the proportion of one dental surgeon to every one thousand of said army. Said dental surgeons shall be employed as contract dental surgeons, under the terms and conditions applicable to army contract surgeons, and shall be graduates of standard medical or dental colleges, trained in the several branches of dentistry, of good moral and professional character, and shall pass a satisfactory professional examination. Provided, That three of the number of dental surgeons to be employed shall be first appointed by the surgeon-general, with the approval of the secretary of war, with reference to their fitness for assignment, under the direction of the surgeon-general, to the special service of conducting the examinations and supervising the operations of the others, and for such special service an extra compensation of sixty dollars a month shall be allowed: Provided further, That dental college graduates now employed in the hospital corps, who have been detailed for a period of not less than twelve months to render dental service to the army and who are shown by the reports of their superior officers to have rendered such service satisfactorily, may be appointed contract dental surgeons without examination.*

Many worthy members of our profession who seek to put dentistry in a better light before the eyes of the public, criticise the clause in this bill which provides that the candidates shall be appointed as contract surgeons. There is some justice in this complaint, but it must be remembered that the Hull bill, which was introduced in the last congress and failed of passage, aimed higher, and proposed that dental surgeons should be commissioned officers. The appointment of dentists even on a contract basis will show the value of their services in the army, and if it can be proven that there is a real need the present proposed arrangement will lead to better things and eventually raise the army dentists to the same plane as army surgeons.

There is some opposition by physicians now in the service to the proposed scheme, and the *Brooklyn Eagle* of Jan. 16 reports the opinion of "a prominent army surgeon" who is utterly opposed to.

the idea. He thinks that if this bill passes, the government should add tooth-brushes and tooth-powder to the rations. He further says that besides the first cost army dentists would entail on the government there would have to be another outlay for materials. To show how little he knows about the subject, he states that men are not accepted as recruits unless their teeth are sound, and "as they serve but three years their teeth cannot deteriorate very much in that time." This statement is so ridiculous that it does not merit a reply, but we believe all the opposition to the proposed bill can be ascribed to the jealousy of army physicians, and it is a further exemplification of the lack of recognition which the medical profession has always given our own calling. On the other hand, some surgeons who have reviewed the matter from an intelligent and unprejudiced standpoint strongly favor it. Dr. F. C. Stanton of Chicago, surgeon in the Illinois state militia and late acting assistant surgeon in the United States army, expresses his hearty approval of the bill, and has written Mr. Otey, commending his efforts towards its passage. He says: "This is a matter the importance of which has been gravely underestimated up to the present time. As a surgeon in the volunteer service, I am aware of the frequency with which the services of a dental surgeon are required, and I shall be happy to do anything in my power to further the passage of the bill."

The bill was given a hearing on Jan. 16, 1900, and we hope that for the sake of the army recruits and the dental profession this important measure may secure a passage. The war department on January 20 received a report from Gen. Otis which will greatly aid the bill. He says that the year's service in the Philippines has practically ruined the teeth of 50 per cent of the soldiers, and that the teeth of the rest show evidences of decay. He wants dentists sent at once, or the men under him will be unfit for service.

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#### THE PROFESSION'S FRIENDS—THE S. S. WHITE CO. AND THE INTERNATIONAL TOOTH CROWN CO.

Our attention has been called to a recent circular sent out by the S. S. White Co. which professes to be an interpretation of the decision in the recent case of the Crown Co. vs. Jas. Orr Kyle, the defendant in the Crown Co.'s last suit. This circular is unfair, tricky and misleading. It is intended to convey the impression that

the dentists stand in no danger of litigation from the International Tooth Crown Co., except upon the Low bridge patent, which expired in March, 1898, and that they are in very little danger from even that patent.

Nothing is further from the truth. The Crown Co. have at least thirty-eight patents, for the most part unexpired, relating to crown and bridge work and other artificial dentures. The settlements that have been made thus far by the Crown Co. with certain members of the Protective Association, and the release and license given, relate to fifteen patents only. This bears out our previous statement and confirms the charge of misrepresentation against the S. S. White Co. in their circular.

From a reading of said circular it would appear that its sole object and intention is to discourage the non-members from uniting with us in the Association, and to intimate to the members that they have been frightened into joining when no danger existed of their being sued.

Every dentist knows that he cannot be held for work infringing on a patent after it has expired. This has been frequently stated by us in public meetings and circulars, and we have also stated the length of time for which the profession are liable, in case the patent should prove valid. It has been impossible for us to make any distinction between dentists who were old in the manufacture of bridge work and the younger men who had used the method but a short time before the patent on it expired. The longer time and more work a dentist did the larger amount the Crown Co. could collect from him, but a man who infringed a patent one day before its expiration could be held for one year's license and royalty.

The S. S. White Co. circular intimates that the whole matter is too trifling for the dentists to take any interest in. We would merely point to the twelve year's litigation which the Protective Association has had with the Crown Co. and with several other patent organizations, and the fact that although this patent has expired for nearly two years the Crown Co. are far more active in the bringing of suits against the dentists for past royalty and license fees than they were before the patent's expiration. No one knows better than the officers of the S. S. White Co. and their attorneys that no more harrassing form of litigation can be put upon the dental profession than the numerous suits which are now being

brought in various states. The pretended fear of the S. S. White Co. that they or some of their patrons would be sued by the Crown Co. because of the manufacture and use of "the Logan and other porcelain crowns, and the gold cap crowns" sold by them, is not only insincere but ridiculous.

The action of the Tooth Crown Co. in attempting to intimidate members, and the course taken by their apparent allies, the S. S. White Co., have been so contemptible and misleading that we feel strongly tempted to open wide the doors and give every dentist in the profession, who has not already done so, a chance to join the Protective Association. The books were closed at the solicitation of the membership, but several prominent members and societies have suggested that to reopen the doors might perhaps after all be the wisest course. Our inclination has always been not to limit protection, but the members objected, and rightly, to paying for the defense of those who contributed nothing.

The action of the S. S. White Co. in this instance is in strict accordance with their past methods. The Trust sees the menace to its interests in having the profession banded together, and while they dare not come out so openly, and through their traveling salesmen misrepresent and belittle the Protective Association as they have done in the past, they adopt a more subtle and contemptible course of warfare against our organization. If the S. S. White Co. think the Protective Association is on the right track, why do they not come out and say so? Or if they really believe the malicious statements which they have circulated about us, why have they not the courage of their convictions to openly denounce this organization?

We shall shortly carry the war into the enemy's camp, and issue a detailed communication, showing in small part the vast sums of money which the S. S. White Dental Mfg. Co. has mulcted from the profession in the shape of royalties upon worthless patents, and furthermore, expose the various subterfuges and legerdemain which that company makes use of to conceal the fact that the money is so taken from the dentists. Unlike our traducers, we have facts upon which to base our accusations and not draw upon imagination.

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TEACHING OF DENTISTRY IN PUBLIC SCHOOLS.—There is a movement on foot in Cincinnati to teach pupils something about their teeth, and it is thought that the board of education will act favorably in the matter.

## Notices.

### ARKANSAS DENTAL ASSOCIATION.

This organization elected the following officers at its annual session on Jan. 3, 1900: President, W. H. Marshall; First Vice-President, W. T. Cate; Second Vice-President, C. J. Farrow; Rec. Sec., W. C. Gillespie; Cor. Sec., W. H. Buckley; Treasurer, Dr. Collins.

### INSTITUTE OF DENTAL PEDAGOGICS.

The National School of Dental Technics changed its name as above at the annual meeting held in Philadelphia, Dec. 27-29, 1899. The following officers were elected for the ensuing year: President, H. P. Carlton; Vice-President, G. E. Hunt; Secretary and Treasurer, H. J. Goslee. Member of Board, W. E. Wilmont.

### LATEST DENTAL PATENTS.

- 32,005. Design, fountain cuspidor, Henry E. Weber, Canton, O.
- 638,973. Dental matrix retainer, Charles F. C. Mehlig, New York.
- 639,536. Dental plugger, Charles H. Davis, Worcester, Mass.
- 639,585. Dental filling material, Charles H. Land, Detroit
- 639,595. Cleaning pad for dentist's tools, Josephine A. Mitchell, Lewiston, Me.
- 640,551. Artificial tooth crown, Charles A. Fones, New York.
- 640,930. Attachment for dental dams, Martin O. Nelson, Natick, Mass.
- 641,170. Dental appliance, W. J. Thurmod and E. W. Clark, Macon, Ga.

#### TRADE-MARKS.

- 33,895. Teething remedy, Johannes B. de Beer, New York.
- 33,947. Disinfectant, Annie Campbell, Washington, D. C.

Copies of above patents may be obtained for 10 cents each by addressing John A. Saul, Solicitor of Patents, Fendall Bldg., Washington, D. C.

### PROTEST BY AMERICAN DENTAL CLUB OF PARIS.

At a meeting of the club in October, 1899, it was voted that the following protest be sent to leading dental journals of Europe and America for publication. Dr. I. B. Davenport of Paris also made some remarks on the question:

"We, the undersigned, whose names are appended to the affirmation of the success of 'Dentine Plastique du Docteur Klein', have never given consent to the use of our names in that connection." Signed, J. G. Brigiotti, E. A. Bogue, C. C. Daboll, I. B. Davenport, C. V. Du Bouchet, Chas. Hotz, Theodore W. Evans, Henry Didsbury, J. H. Spaulding, John Evans, J. Michaels, A. Huguenschmidt, John Didsbury, L. Saussine, Geo. Roussel, W. S. Davenport.

In the advertising pamphlet to which the above names were appended was a cut of half of a molar tooth, with the following explanation: "Dentine Plastique du Docteur Klein du Buda Pest. Vue de sa transformation dans



"la chambre pulpaire apres trois mois de sejour dans la bouche." (View showing its transformation in the pulp-chamber after three years sojourn in the mouth.")

Dr. Davenport said: "This circular seems to have been published all over the world, with our names added against our wish or knowledge, and is helping to sell this stuff, the composition of which we know nothing.

"Now about that piece of tooth sent for us to inspect, and this drawing made from the same, which forms part of the circular to which our names are appended, Mr. Dalton can tell you and has kindly consented to do so. Mr. Dalton is an expert preparer of objects for microscopical study; his work in the form of 'Dalton's Gems' is well known." Mr. Dalton said:

"Gentlemen: Some time ago a friend brought me a section of a tooth, of which a gentleman unknown to me wished a drawing made, showing particularly the appearance of a substance under the filling. This cut in the circular mentioned by the essayist is a reproduction of the drawing made by me, excepting that these heavy lines have been made over my drawing, as if marking it off into little squares; in all other particulars it is as I drew it. When I examined the section from which the drawing is made I noticed a familiar substance occupying part of the pulp-chamber and supporting the filling. I scratched out a slight fragment, placed it under the microscope and found it to be as I first supposed, a section of cuttle-fish bone. I am not a dentist, but when my friend came for the drawing I casually remarked—'That must have been a clever idea to place a light support of cuttle-fish bone to build the filling upon.' My friend replied: 'Get out with your cuttle-fish bone, that is newly formed dentin.' I was greatly surprised, as I supposed he knew its composition. After some difficulty he was convinced, but not until I had shown him under the microscope pieces of this capping side by side with pieces of cuttle-fish."

## News Summary.

THE ACHERS of the farmer yield the dentist an income.

F. DESCHAUER, a dentist of Chicago, died Jan. 4, 1900, of pneumonia.

James Cope, 85 years old, a dentist at Connellsville, Pa., died Jan. 20, 1900.

APPROPRIATE.—A temperance lecturer died recently from *water on the brain*.

W. H. WATERS, a dentist of Burlington, Vt., died Jan. 2, 1900, at the age of 63 years.

W. C. REITH, a dentist of Sacramento, Cal., died Jan. 17, 1900, at the age of 34 years.

WELDON L. SMITH, 34 years of age, a dentist at Friendship, N. Y., died Jan. 19, 1900.

W. W. BRIDGE, 48 years old, a dentist of Providence, R. I., died Jan. 15, 1900.

M. M. MALTBY, a dentist at Northampton, Mass., died Dec. 23, 1899, at the age of 54 years.

TEXAS BOARD ACTIVE.—It cost a dentist in Dallas \$25 to practice dentistry without a license.

C. M. GLASS, a dentist of Corey, Mich., came to Chicago recently and mysteriously disappeared from his hotel.

BENTON MOLONY, a retired dentist of Norristown, Pa., died suddenly Jan. 17, 1900, at the age of 63 years.

W. L. MAUPIN, a dentist of Perry, Okla., was indicted for murder, according to the *Globe-Democrat* of Dec. 23, 1899.

A. J. WATTS, the inventor of Watts' crystal gold, died suddenly at his home in Brooklyn Jan. 22, 1900, aged 73 years.

DIED IN DENTAL CHAIR.—A man died Dec. 26, 1899, in a dentist's chair at Cadillac, Mich., while under the influence of chloroform.

TONSILLITIS.—R. Sodium benzoate,  $\bar{\imath}$   $\frac{1}{4}$ ; elix. calisaya, aa  $\bar{\imath}$  1. M. Sig. Teaspoonful every hour or two.—*Stevens* (N. Y.) *Polyclinic*.

M. T. GAY, a dentist at Adairville, Ky., shot a business man of that place during a quarrel, and then committed suicide on Jan. 3, 1900.

TRAVELING DENTIST IN TROUBLE.—He tried to practice dentistry in Vermont without a license, and the state board has gotten after him.

NUTRITIOUS.—"Tommy," said teacher, "what is meant by nutritious food?" "Something to eat that ain't got no taste to it," replied Tommy.

NITROUS OXID FATAL.—A 12-year old boy died in Waterbury, Conn., recently while under nitrous oxid, given previous to tooth extraction.

W. S. RAWLS, 52 years old, a dentist of Indianapolis, died Jan. 13, 1900, at Las Cruces, N. Mex., where he had gone to seek a cure for consumption.

SOUR STOMACH.—A teaspoonful of glycerin at meal time, in water or coffee or tea, will cure a sour stomach and overcome flatulency.—*N. Y. Lancet*.

MONTANA STATE BOARD'S REPORT.—From the statement issued by that organization it appears that there are at present 108 registered dentists in the state.

HOT-WATER BAG.—Bill Nye likened the "feel" of a hot-water bag to that of a Mexican hairless dog. Any one who has seen these animals will appreciate the comparison.

CLEVELAND DENTAL SOCIETY elected the following officers Jan. 8, 1900: President, J. F. Stephan; Vice-President, W. A. Siddall; Secretary, F. J. Sprague; Treasurer, E. B. Lodge.

A SOFT SNAP.—Physician: Your husband must stop all work, all thought, everything. Dentist's wife: He would never consent to absolute idleness. Physician: Then we must fool him into imagining he is busy. Get him appointed a member of the Illinois State Board of Dental Examiners.—[With apologies to the *New York Weekly*.]

NOT WHAT HE WANTED.—Nurse: It's time for your nourishment now. Mr. Peppery (who is convalescent): Hang nourishment! What I want is something to eat.

G. O. ROGERS, a dentist at Portland, Ore., died Jan. 2, 1900, at the age of 67 years. He was prominent as a scientist and philanthropist, and was also well known as a writer and lecturer.

SIGHT WENT WITH TEETH.—An Italian in Pittsburg is totally blind, and he and his friends think it resulted from having his teeth extracted, as after each operation his sight became weaker.

HIVES.—Jagging Jim—"Ello, Slumpy! What's de matter wid yer face and hands? Got de hives?"

Slumpy—"No—got de bees."—*Judge.*

WARREN CO. (ILL.) DENTAL ASSOCIATION.—Eight dentists of this county organized the above association on Jan. 4, 1900. Dr. Darricklow of Monmouth is secretary, the only office instituted.

MUTUAL.—"Well," said the patient, paying his bill, "I shall now go and eat a square meal for the first time in three days." "Same here," quoth the dentist, thrusting the money deep in his pocket.

DENTIST IDENTIFIES DEAD BODY.—A dentist at Missoula, Mont., identified the victim of a murder at Ashland, Wis., by means of some work which the dentist had done in the mouth of the deceased.

E. W. ANDREWS, a prominent dentist of Haverhill, Mass., has been missing from his home since Jan. 5. His health was poor for some time, and his relatives attribute his disappearance to mental trouble.

SAPONACEOUS DENTINE.—The manufacturer of a tooth powder, which he is advertising to the general public, designates his product as "Saponaceous Dentine." Will some one kindly tell us what he means?

PLASTER PAPER.—T. Koller suggests that cigaret paper painted with the following solution be used as a substitute for court plaster: Salicylic acid, 1; gum arabic, 45; water, 55; glycerin, 2-3.—*Pharm. Centralh.*

BYRON S. SABIN, a New York dealer in dental supplies, died Jan. 12, 1900, at a prize fight in New York City. He had suffered from heart disease for four years, and the excitement of the fight caused his death.

OSTEOPATHS IN KENTUCKY.—The courts of that state do not recognize the school of osteopathy at Kirksville, Mo., as a reputable school of medicine, and its graduates will therefore not be allowed to practice in Kentucky.

TEXT BOOK ON ORAL HYGIENE.—Dr. W. O. Talbot, of Biloxi, Miss., has addressed an open letter to the legislature of that state, in which he urges the necessity of including in public school curriculums a text-book on the above subject.

SOUTH JERSEY DENTAL SOCIETY at its annual meeting Jan. 17, 1900, elected the following officers: President, J. E. Duffield; Vice-President, O. E. Beck; Cor. Sec., W. W. Crate; Rec. Sec., A. K. Wood; Treasurer, Mary A. Morrison.

LYCOMING COUNTY (PA.) DENTAL SOCIETY held its annual meeting Jan. 15, 1900, and the following officers were elected for the ensuing year: President, F. J. Richards; Vice President, G. W. Klump; Secretary, W. M. Ash; Treasurer, A. B. Robbins.

RIGHT TO REVOKE LICENSE.—The Supreme Court of the State of Iowa in a recent decision holds that the state board of medical examiners has the right to revoke the certificate of a physician if it thinks him incompetent to practice.—*Med. Age*.

PORTLAND STOMATOLOGICAL CLUB elected the following officers at its January meeting: President, John Welch; Vice-President, Geo. Marshall; Secretary, W. B. Knapp; Treasurer, F. E. Ferris. Member Executive Committee, C. E. Stolte.

HUNGARIAN PUNISHMENT FOR BIGAMY.—Bigamists in Hungary are compelled to submit to a queer punishment. The man who has been foolish enough to marry two wives is obliged by law to live with both of them in the same house.—*Med. Record*.

CENTIGRADE AND FAHRENHEIT.—Dr. W. J. Swift writes: A simple and easily remembered formula for the conversion of Centigrade degrees into Fahrenheit degrees and *vice versa*, is the following:  $\frac{9}{5}$  C. plus 32=F;  $\frac{5}{9}$  F. minus 32=C.—*Med. Record*.

DENTIST SUED.—A girl 14 years old has sued a practitioner in New York City for \$5,000 damages for malpractice. She alleges that a rubber appliance was adjusted in her mouth for regulating purposes, and that it caused her three front teeth to fall out.

DRAGGED TO THE ALTAR.—A well developed and muscular young dentist in New York City tried to convince the supreme court recently that his wife had intimidated him into marrying her, but the court did not agree with him and dismissed the case.

ST. LOUIS DENTAL SOCIETY.—The following officers have been elected for the ensuing year: President, W. E. Laurenz; Vice-President, T. E. Turner; Corresponding Secretary, Wm. Conrad; Recording Secretary, O. H. Marhard; Treasurer, A. J. Prosser.

EVANS' MUSEUM MAY NOT MATERIALIZE.—The three interests involved—the heirs, the executors and the city—are unable to come to any satisfactory arrangement regarding the settlement of Dr. Thos. W. Evans' estate, and Philadelphia may lose the bequest.

ALLEGANY COUNTY (N. Y.) DENTAL ASSOCIATION met Jan. 11, 1900, and elected the following officers: President, T. F. Warner; Vice-President, P. Greene; Secretary, W. W. Coon; Treasurer, Jas. Wardner. Chairman of Executive Committee, G. Whipple.

TRI-CITY DENTAL SOCIETY, composed of dentists of Omaha, South Omaha and Council Bluffs, was organized Jan. 12, 1900. The officers are: President, J. H. Wallace; First Vice-President, B. J. Fisher; Second Vice-President, C. H. Jefferis; Secretary, H. A. Foster; Treasurer, J. C. Deetken. Program Committee, F. W. Slabaugh.

**INDIANA DENTAL BOARD'S WORK.**—At a meeting of this organization on Jan. 10, 1900, a resolution was passed prohibiting dental students from practicing dentistry outside of the colleges. We did not suppose that students ever practiced until they graduated.

**LORAIN COUNTY DENTAL SOCIETY** met at Elyria, O., Jan. 11, 1900, and elected the following officers: President, H. G. Husted; Vice-President, B. E. Saunders; Secretary and Treasurer, C. W. Purcell. Committee, J. B. Webber, E. F. Grose and E. S. Kiplinger.

**OSTEOPATHY UNLAWFUL IN PENNSYLVANIA.**—The *Columbus Medical Journal* is authority for the statement that the medical council of Pennsylvania has decided that the practice of osteopathy within the state is illegal, and that those engaged in it are amenable to the law.

**ETHMOID BONE AND NASAL CATARRH.**—Sumner calls attention to the importance of the inflammatory processes in the ethmoid sinus, and suggests the prevalent catarrhal condition in New England as the cause of the nasal twang of the Yankee voice.—*Jour. of Med. and Sc.*

**OSTEOPATHY IN GEORGIA.**—Both branches of the legislature passed a favorable act, in spite of the most earnest protests from the physicians of the state. The governor, however, promptly vetoed the bill, for which act he deserves the thanks of the community in the state and at large.

**SOAPS CONTAINING ANTISEPTICS** have been found to possess less antiseptic power than the same amount of such substances without the soap. In disinfecting the hands a non-antiseptic soap can first be used and the desired antiseptic afterward applied to greater advantage.—*Med. Record.*

**PECULIAR ACCIDENT.**—While a patient at Austin, Ill., was sitting in the dental chair a pair of forceps just used on a former patient fell from the table onto his left hand, causing a slight abrasion of the skin. Blood poisoning set in some time afterward, and the forceps are held accountable.

**SOUTHERN KANSAS DENTAL ASSOCIATION** adjourned Dec. 27, 1899, after a very profitable meeting. The next session will be held at Wichita. The following officers were elected: President, J. R. Lowe; Vice President, B. L. Sholes; Secretary, U. S. Hougland; Treasurer, L. B. Corn. Member Board of Censors, J. H. Rhodes.

**ADVERTISING DENTIST ARRESTED.**—The proprietor of a dental parlor in New York City was arrested Jan. 12, 1900, on complaint of the agent of the state dental society, for violating the dental law. It is charged, according to the *New York Tribune*, that the defendant is guilty of malpractice and failure to live up to contract.

**HYPNOTISM.**—"Mammy," said pickaninny Jim, "I's gwine to be one er dese hypnotizers."

"Whut's dem?"

"You look somebody in de eye, an' he des nach'ly goes to sleep."

"Well, don't you go was'in' yoh time. Dah's sleepfulness nuff in dis worl' an—," she paused suddenly, and after a moment of thought added: "Jimmy, does you 'magin' you could do dat to a chikin?"

**DENTISTS LIABLE FOR NEGLIGENCE.**—The supreme court of Kansas has upheld a verdict for damages of \$2,000 which was given against a dentist. The plaintiff averred that the instruments used on him were unclean and that blood poisoning resulted. This should be a warning to all practitioners to thoroughly sterilize their instruments.

**ERUPTIONS ON THE FACE DUE TO NASAL PRESSURE.**—It is not infrequently the case that the unsightly eruptions about the alæ of the nose are due to pressure within the nasal cavities produced by a spur, an hypertrophied turbinal, etc. Though they may not be sufficient to obstruct the breathing, they keep up continued irritation.—*Payne, in Pacific Med. Jour.*

**INDIANA LAW CLAIMED TO BE UNCONSTITUTIONAL.**—The Indiana board convicted an unregistered dentist in the police court, and he has appealed to the criminal court. His attorney claims that the state law is unconstitutional, inasmuch as the legislature has the right to say who the members of the state board shall be. The result of the case will be watched with interest.

**FORCED DILATION OF THORAX TO ARREST EPISTAXIS.**—The subject sits erect on a chair, places both arms on his head and breathes quietly and as deeply as possible, with open mouth. The veins of the head and neck are emptied of blood by this procedure and the hemorrhage stops. The *St. Petersburg Med. Woch.* mentions that Fedorowitsch has cured fourteen severe cases by this simple means, all children but one.—*Jour. A. M. A.*

**LARGE LYMPHATIC GLANDS** about the neck in children are frequently due to enlarged tonsils or to the presence of adenoids. The throat must therefore always be carefully examined in these cases, for removal of the tonsils or adenoids will cause the glands to subside. In adults enlarged glands are very suggestive of the presence of malignant trouble, and necessitate careful examination of the whole mouth and throat.—*Int. Jour. of Surg.*

**OREGON STATE BOARD UPHELD.**—This organization recently refused to grant license to a candidate who did not pass a satisfactory examination. When suit was brought the court remarked that he would not trench upon the prerogatives of the dental board, and held that discretion was necessarily lodged in such a board, and the court would not interfere with it; that he could reverse the board's decision only upon clear and positive evidence of abuse of discretion.

**IN A BAD WAY.**—"Did I understand you to say that Bill Jones was dead?"

"Yes. Died last Thursday."

"Is that possible?"

"Yes, that's right."

"So Bill Jones is dead. Well, well."

"Yes, he's dead."

"Do you know, I can scarcely believe it, poor chap! Poor Bill, I knew him well. So he's really dead, is he?"

"Well, if he ain't dead, he's in a darned bad predicament. I saw him buried."—*Cleveland Plain Dealer.*



**FRAUDULENT ADVERTISING.**—The *Berliner Aertze Cor.* relates that a local physician was recently sued for damages by a firm that had sent him bottles of a new "universal remedy," begging him to try it in his practice. No formula was enclosed. He returned it and wrote on a postal, requesting the firm not to send him anything more of the kind as he considered it fraudulent advertising. The lower court sentenced him to pay ten marks damages, but the higher court acquitted him.—*Jour. A. M. A.*

**PHYSICIAN LIABLE.**—A physician who prescribes and sells to his patients whisky, brandy, wine or other alcoholic liquor that is not compounded into a medicine by the admixture of any drug or medical ingredient therewith, is required to pay special tax as a retail liquor-dealer, even though the alcoholic liquor thus furnished be prescribed as a medicine only and so used, according to a recently reported decision of Commissioner Wilson of the U. S. Department of Internal Revenue.—*Jour. A. M. A.*

**BLACK EYE**—There is nothing to compare with the tincture or strong infusion of capsicum annuum mixed with an equal bulk of mucilage or gum arabic and with the addition of a few drops of glycerin. This should be painted all over the bruised surface with a camel's-hair pencil and allowed to dry on, a second or third coating being applied as soon as the first is dry. If done as soon as the injury is inflicted this treatment will invariably prevent blackening of the bruised tissue. The same remedy has no equal in rheumatic sore or stiff neck.—*Ex.*

**RATHER UNJUST.**—I have heard of the cavalry recruit who when thrown from his horse was reported for "dismounting without leave;" but now comes the tale of a cornet-player in the band of a distinguished regiment who once had the misfortune to lose a front tooth. A false one was bought for his use, and during some Christmas festivities he lost the tooth; but even the iron-faced sergeant-major smiled when the man was brought up in the orderly-room charged with "making away with or losing by neglect one false tooth, the property of the band fund."

**SPECIALISM EXTRAORDINARY.**—The *American Med. Compend* for December quotes Dr. Kyle as saying: "We need more general medicine in specialism. There is such a thing as the specialist becoming too special, as is illustrated in the somewhat exaggerated story of the man who consulted the surgeon for the relief of a badly injured thumb. The surgeon looked wisely at the thumb and said: 'My dear sir, that is a badly injured thumb—you must seek Dr. Blank at once.' 'But, said the patient, 'aren't you a surgeon?' 'Oh, yes,' said the doctor, 'but my specialty is the other thumb.'"

**DRUGGISTS AND MEDICAL PRACTICE.**—Justice McLean, in the New York supreme court, has rendered a decision in connection with the dismissal of the complaint in a suit brought by Ferdinand Roth against Arneman & Behrens, druggists, to recover \$10,000 damages for alleged improper treatment of a cut on the thumb. Roth went to the defendant's drug store, where a clerk bandaged the wound and handed the plaintiff a bottle containing carbolic acid, directing him to put a few drops on the bandage. Ac-

cording to Roth, this treatment resulted in inflammation, blood-poisoning, and finally in amputation of the thumb. The defendant set up the plea that druggists were not permitted, under the laws of this state, to practice medicine and surgery, that the plaintiff should, therefore, have gone to a qualified physician and surgeon, and that if any action could be maintained in this case, it could be only against the clerk. The judge coincided in this view, declaring that the complainant sought advice at his own risk.—*Jour. A. M. A.*

**NAUSEA AS A HEMOSTATIC.**—The natural defensive powers of the animal organism are manifold. We all recognize the efficacy of fainting as a check to loss of blood, and it seems that even seasickness is sometimes of service. At a recent meeting of the Paris Society of Biology Dr. Onimus mentioned the case of a young man who was subject to frequent attacks of hæmoptysis which nothing but seasickness would control (*Gazette hebdomadaire de med. et de chirurgie*, Oct. 26, 1899). He is inclined to think the good effects of ipecac in hæmoptysis are due to the nausea induced by it, and he suggests its employment in other forms of hemorrhage.—*N. Y. Med. Jour.*

**DEFEAT THE TRAVELING QUACKS.**—Physicians who deprecate the patronage of faith-cure fakirs and other frauds by their clientele can well emulate the example of Dr. McDougall of Connorsville, Ind. He writes an intelligent, reasonable letter to his local county paper showing plainly the fraudulent character of these "magnetic healers" and their ilk, as well as their mercenary methods of "treating" their victims as long as fees are forthcoming, and then sending them back empty-handed to the faithful local physicians for real medical assistance as charity patients. So effectually does the doctor show up these fellows that they actually soon leave town for want of patronage. His articles are signed "Fair Play," so that he is free from the imputation of self advertising.—*Med. Council.* [Dentists in the smaller towns might do well to follow the above example.—*ED. DIGEST.*]

#### THE MEN WHO DO NOT LIFT.—

The world is sympathetic. This statement none can doubt;  
When A's in trouble don't we think that B should help him out?  
Of course we haven't time ourselves to care for any one,  
But yet we hope that other folks will see that it is done.  
We want the grief and penury of earth to be relieved,  
We'd have the battles grandly fought, the victories achieved;  
We do not care to take the lead, and stand the brush and brunt,  
At lifting we're a failure, but we're splendid on the grunt.  
And there are others, so we find, as on our way we jog,  
They do a lot of blowing, and they strive to make it known  
That were there no one else to help, they'd lift it all alone.  
If talking were effective, there are scores and scores of men  
Who'd move a mountain off its base and move it back again;  
But as a class, to state it plain, in language true and blunt,  
They're never worth a cent to lift, for all they do is grunt.

—*Selected.*

**SEVERE HEMORRHAGE FOLLOWING EXTRACTION.**—W. H. Dolamore advocates the passing of sutures from the gum on one side of the tooth socket through that on the opposite side, and tying them together as tightly as possible. The clot is retained, the thread possibly hastening its formation; the stitches are left in for a few days. In cases where there is much laceration of the gum, and the alveolus is broken or removed during the extraction of the tooth, it is possible with the stitches to draw together the edges of the wound and so lessen its size considerably. He recommends the use of a curved needle, which should be rather strong, for the gum is dense, and the needle is apt to strike against the opposite alveolar wall. Horsehair answers well for the sutures; it should be strong and used in long pieces. Two or three stitches suffice, each being passed through the gum on one side, then through that on the other, and separately tied.—*Jour. Brit. D. Assn.*

**HEMOPHILIA.**—Dr. G. W. Wagner (*Physician and Surgeon*) draws the following conclusions: 1 Hemophiliacs make blood rapidly, the cause of which is undetermined. 2. There is a tendency to plethora of the smaller vessels, especially of the capillaries. 3. The deficiency of oxygen in the blood is one of the main reasons for its slow coagulation. 4 The narrow lung space, at least in some cases, is a factor in the deficient oxygenation of the blood and would suggest that in future the capacity of the lung space be carefully noted. 5. Apparently the best remedy to control the hemorrhage is oxygen either by inhalation or contact. It acts in two ways: it causes greater rapidity in the coagulation of the blood, and it also causes the nuclei of the endothelial cells of the capillary wall to swell and so narrow the lumen of the vessel.

**ALCOHOL NARCOSIS.**—Matthaei, *Centralb. f. Chirurgie*. This method of narcosis is based on the similarity of the effects of alcohol, chloroform and ether and the assumption that alcohol is less dangerous than the others, especially for persons accustomed to its use. Matthaei announces that rabbits can be rendered insensible in two or three minutes to needles inserted in the ears, paws or skin by having them inhale the fumes of alcohol heated to 50 or 60 C., supplemented by a mechanically retained rectal injection of two to five grams of spiritus in ten to fifteen of water. He used Kappeler's metal chloroform mask and apparatus, which sends compressed air into the alcohol. The fumes alone do not produce deep enough narcosis, and it persists too long. The supplementary alcohol is far more prompt and energetic in its action, administered *per rectum* than *per os*, which also avoids danger of the subjects acquiring a taste for liquor. The room must be quite warm to prevent condensation of the alcohol on the mask. In all previous attempts at alcohol narcosis unnecessarily enormous doses have been administered. The proportion for the rectal injection is 1.2 to 2 grams of alcohol per kilogram of weight—that is, for an adult weighing 60 kilograms, 72 to 120 grams of alcohol, equal to from 144 to 240 grams 50 per cent cognac or a bottle of wine, but the effective minimum must be sought for individual cases. He begs others to test this method on man, for which he has no opportunity, suggesting that it might first be tried on intoxicated persons requiring an urgent operation.—*Jour. A. M. A.*

**PHENOMENA OF PAIN.**—As a result of some experiments on the phenomena of pain made by Arthur McDonald, of the United States Bureau of Education, by means of a "temple algometer," he finds that in general pain decreases as age increases; the left temple is more sensitive than the right, as is also the left hand over the right. There is an increased obtuseness to pain between the ages of ten and eleven, a decrease from eleven to twelve, an increase from twelve to thirteen; from thirteen to seventeen, while the right temple increases in obtuseness, the left temple increases in acuteness. Girls in the private schools, who have wealthy parents, are much more sensitive to pain than girls in the public schools whose parents are not wealthy and who are accustomed to work. University women are more sensitive to pain than are washerwomen, but less so than business women; there seems to be no necessary relation between intellectual development and pain sensitivity, and an obtuseness to it seems to be due more to hardness in early life. To summarize, acute sensitiveness to pain is greatest with girls of the wealthy classes, then with the self-educated women, then with business women, then with university women, and lastly with washerwomen.—*Jour. A. M. A.*

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